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American Artisan

and Hardware Record

Sheet Metal Work—Warm Air H

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Vol. 94, No. 19

CHICAGO, NOVEMBER 5, 1927

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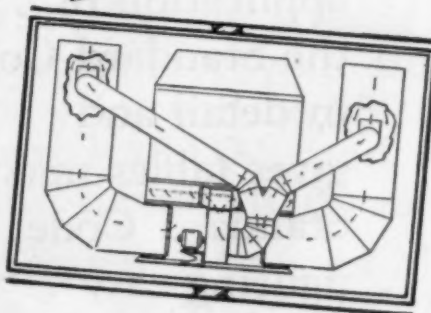
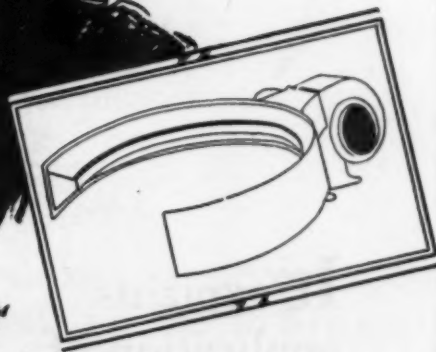
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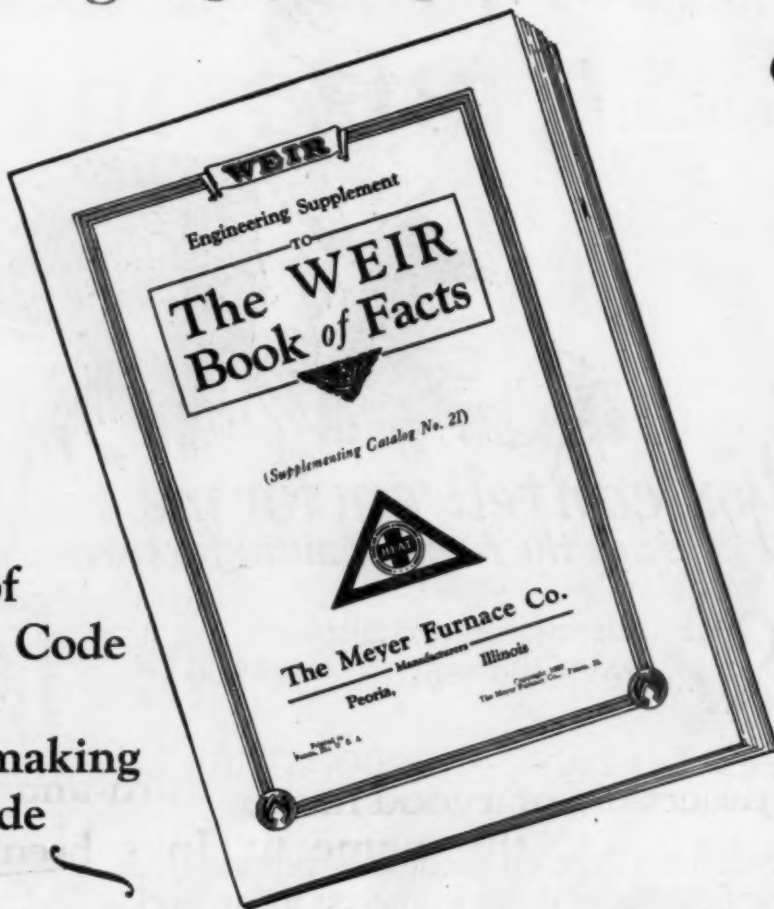
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In subsequent issues of this magazine, a complete description and illustration of this new construction will be given, together with full details regarding the contest.

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FITTINGS



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FURNACE CO.**

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to serve more and more homes year after year.

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Ease and economy of operation—

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Also Manufacturers of
Monarch Furnaces

THE FOREST CITY FOUNDRY & MFG. CO.
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Now— in preparation the 34th Warm Air Furnace Annual

INTEREST in the Warm Air Heating Industry this year is very keen. There are dozens of vital questions on which both manufacturers and warm air heating contractors would like more light. Dozens of questions which all would like answered.

This Annual will tell you what the other fellow thinks about the future of the warm air heating business—it will tell you what the other fellow did in 1927—and how he did it.

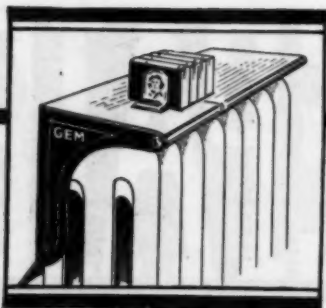
The value of this Annual to the warm air heating and sheet metal trade is well known to the industry and many manufacturers of Warm Air Furnaces, Sheet Metal and Warm Air Heating Supplies have already contracted for their advertising space in this issue.

The 34th Warm Air Furnace Annual will be issued on December 31st. This means that you should make your space reservations NOW.

Numerous requests for the Front Cover position have been received but the Front Cover is NOT FOR SALE.

Following our usual example an art cover symbolic of the warm air heating industry will be used.

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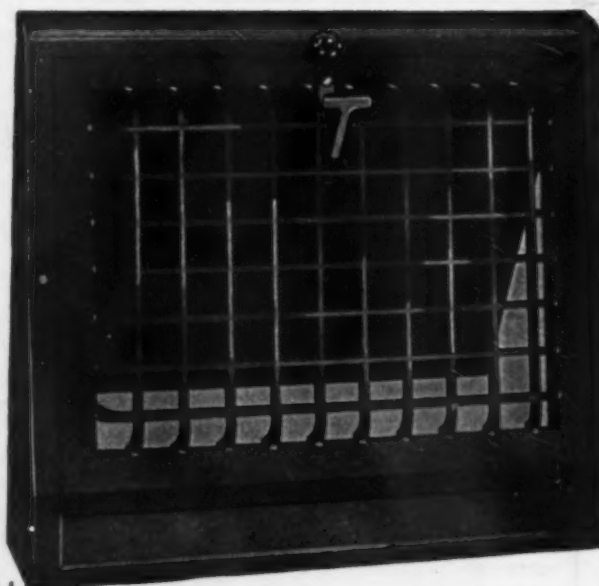
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Baseboard Register

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8x12	"	2 1/4	"
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*Made by the makers of Walworth Double Gratings,
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Ventilators, Borders and Casings Rings.*

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MEYERS DOUBLE DUTY HEATER AND COMBUSTION CHAMBER

Fig. 1 shows combined fuel saving unit with burner in place. Arrows indicate volume of heated gases at top of fuel saver and small amount escaping into chimney.

Fig. 2 shows air flowing in at the bottom and up around the furnace and tubes to rooms above.

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FOR STOVES AND HEATERS FIRST-CLASS
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VEDDER PATTERN WORKS ESTABLISHED 1836 **TROY, N. Y.**

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STOVE PATTERNS**
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

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THIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

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For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

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Makers of BOOMER FURNACES for Forty-Three Years



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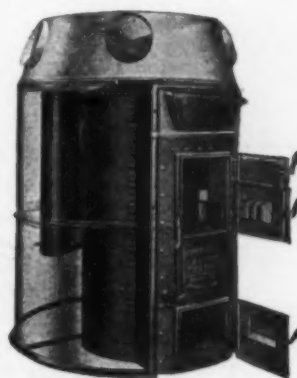
From no other source, do we believe, can you obtain such Complete Selection and Satisfactory Service on either Furnaces or Supplies, as from the "Standard Folks."



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OMAHA, NEBRASKA

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Better
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and
Sheet Metal Work

American Artisan and Hardware Record

Sheet Metal Work-Warm Air Heating

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Uses and Abuses of Fans in Warm Air Heating Systems by One Who Knows

Those men who attended the Two-Day Fan-Furnace convention of the Robinson Furnace Company, held in the Sherman Hotel, Chicago, August 30 to 31, will recall that among others a very able talk was given at that time by E. W. Petersen, Chicago office American Blower Company, on the different types of fans and blowers, their operation, care, and some of the abuses to which they are subject.

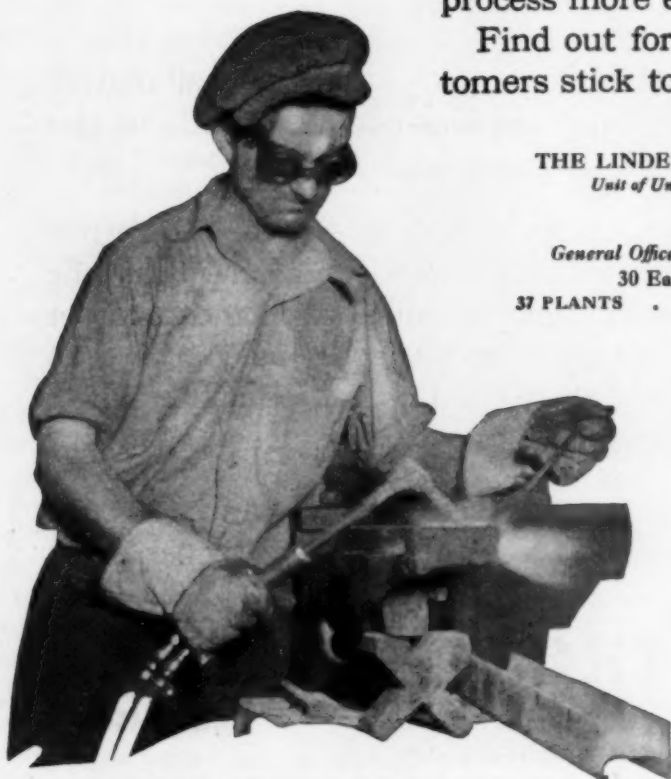
Mr. Petersen has agreed to go over the points he covered during that lecture in an article which he is writing exclusively for AMERICAN ARTISAN. This article will give readers of AMERICAN ARTISAN a very clear idea of the uses and abuses of the fan in connection with the warm air heating system. It will greatly benefit men in the warm air heating industry who are coming in contact with fan work. Watch for the announcement of this article.

Linde wants YOU as a customer

WHETHER you are a large or small user of oxygen, whether your plant is in Maine or California, Linde wants you for a customer.

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Unit of Union Carbide and Carbon Corporation



General Offices: Carbide and Carbon Building
30 East 42d Street, New York
37 PLANTS 107 WAREHOUSES

LINDE OXYGEN

Firing the Furnace—Right and Wrong



A GREAT many furnaces are mounted during the cold weather months and heat is necessary for drying out the house. Once the furnace is mounted, you are naturally anxious to prove that you installed a good heater. But do not proceed to start a roaring fire right away. This rapid, intense heat turns the liquid in furnace cement to steam and, in escaping, causes pronounced honeycombing and swelling, thereby breaking the bond of cement for metal and leaves the cement in a porous, spongy condition, subject to the action of furnace gases, especially where poorer grades of fuel are used.

These conditions can be easily avoided by realizing that a couple of hours' delay in building up the fire is a small matter compared to the serious damage which can be done both to the furnace and the cement by improper firing.

Allow the Cement to air-dry as long as possible, to permit a firm initial set-up. The first fire should be a very slow one which will warm the castings and permit the Cement to set slowly and form a tight, compact and continuous joint. Run this as long as possible and then build it up gradually. Never start a hot fire in the beginning.

By following out the above carefully, you can be assured that you will have the good-will of a satisfied houseowner.

THE ARMSTRONG COMPANY
DETROIT MICHIGAN

Manufacturers of

"THARCO" ASBESTOS FURNACE CEMENT

*Look for
the directions on
our cans*

*"In the Interest of
Better Warm Air Heating"*

*Look for our
article in the
December 3rd issue.*



American Artisan and Hardware Record



Vol. 94

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No. 19

Unique Gas-Fired Residence Warm Air Heating System Has Two Separate Units

In Order to Obviate Necessity of Having Extremely Long Runs

By GEORGE J. DUERR

GAS-FIRED warm air furnaces are coming into vogue quite rapidly, especially in the Chicago area where the Peoples Gas and the Public Service Company of Northern Illinois are promoting the use of gas as a fuel for heating purposes. Consequently warm air furnace installers are coming increasingly into contact with this type of work.

A very unusual gas-fired warm air furnace installation came to my attention recently. It was installed in the 6-room home of Mr. and Mrs. Harold Rubens, 2221 West Grant Street, Evanston, Illinois, and replaced one of those abominations to the warm air heating industry—an installation in which the furnace was placed in one end of the basement and the warm air ducts were made to follow a long, circuitous route from the bonnet to the register, amounting to more than sixteen feet.

Two Distinct Heating Plants

The system that I am going to describe is unique in that it embodies an entirely novel method of eliminating the long warm air ducts, and leaves the basement practically free from warm and cold air pipes, with only a slightly added cost.

The system consists of two sep-

arate and distinct warm air heating plants, each having a capacity of



Figure 1—Gas-Fired Warm Air Furnace No. 2 in the Home of Harold Rubens, Evanston, Illinois, Showing Cold Air Return Construction. Note Easy Transition Employed

about 270 square inches of warm air pipe area and operating entirely independent of one another. The

over-all measurement of each furnace is 20x40x52 inches. They were designed by Robert Satterholm and are the product of the Superior Heating Appliance Company, 231 West Superior Street, Chicago. Each furnace has two burners, so arranged that they can be operated singly or together, according to the heat requirements of the season.

The basement in which these furnaces are installed is of the ordinary size for a 6-room house, the long way running north and south, with cement floor throughout. There is a work bench in one end and a laundry and ironing room in the other. Access is had to the basement by means of a stairway coming down into the center of the room. Because of the location of this stairway, it was impossible to confine the heating plant to one unit without having the extremely long runs.

One of these furnaces, which for convenience in describing it I shall designate as No. 1, is placed in the center of the basement floor just north of the stairway. This unit is so connected that it heats the north portion of

the house, consisting of the dining room, kitchen on the first floor, and the bathroom and one bedroom on

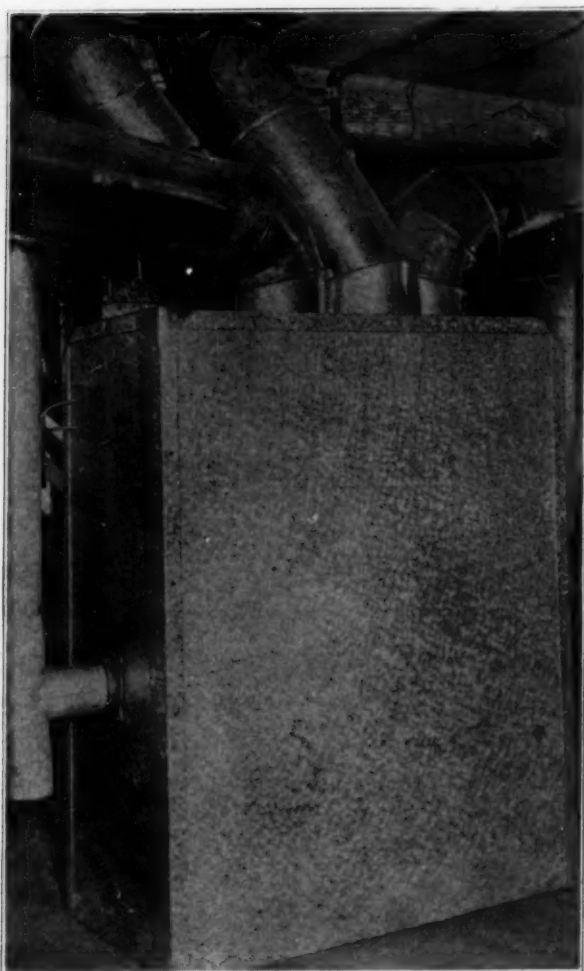


Figure 2—Gas-Fired Warm Air Furnace Showing General Construction and Method of Taking Warm Air Leaders from Top

the second floor.

The warm air ducts are as short as possible, the one in the dining room coming almost straight up from the furnace and emerging



Figure 3—Showing Clean-Out at the Bottom of the Cold Air Boot in Furnace No. 2

from the floor on the south wall of the room. There are two 12-inch and one 8-inch warm air ducts taken from this furnace.

The one cold air return to furnace No. 1 is a 10x28-inch duct running from the extreme north wall of the dining room, where the return air drops into it through a 12x30-inch Hart & Cooley cold air face placed almost directly under the large north window. The cold air pan has a slope back to the furnace of one inch per foot, near which it makes an easy bend and drops perpendicularly into the furnace casing. The bend can be seen in the illustration Figure 4.

In furnace No. 2, which is located just south of the stairway, there are four warm air ducts—8, 9, 10 and 12-inch, respectively—taken from the top of the furnace, as shown in illustration Figure 2. No. 2 takes care of the heat requirements of the front portion of the house, including the breakfast room and the living room—a large room extending across the entire front first

floor of the house. On the second floor there are the front bedrooms and the hall, which are heated by furnace No. 2. The location of the registers and stacks are shown on the diagram, as are the cold air faces.

Entrance to the front of the house from the outside is gained through a door on the east side, which leads to a hall that runs east and west across the breadth of the house and into the breakfast room. Upon entering this hall one has access to either the dining room to the right, the living room to the left, the second floor stairway, or



Figure 4—Showing Method Employed to Conduct Cold Air from Pan to Perpendicular Duct in Furnace No. 1. Note Easy Bend at Ceiling

the breakfast room, the kitchen or the basement straight ahead.

The single cold air leading to furnace No. 2 is located toward the south wall of this hall, near its center and directly above the furnace. The return air drops by means of a 20x36-inch Hart & Cooley cold air face through the floor and into a perpendicular 10x28-inch cold air duct. The method of accomplishing this transition which William F. Wahler, who installed the job, used can be seen by referring to illustration Figure 1, page 15.

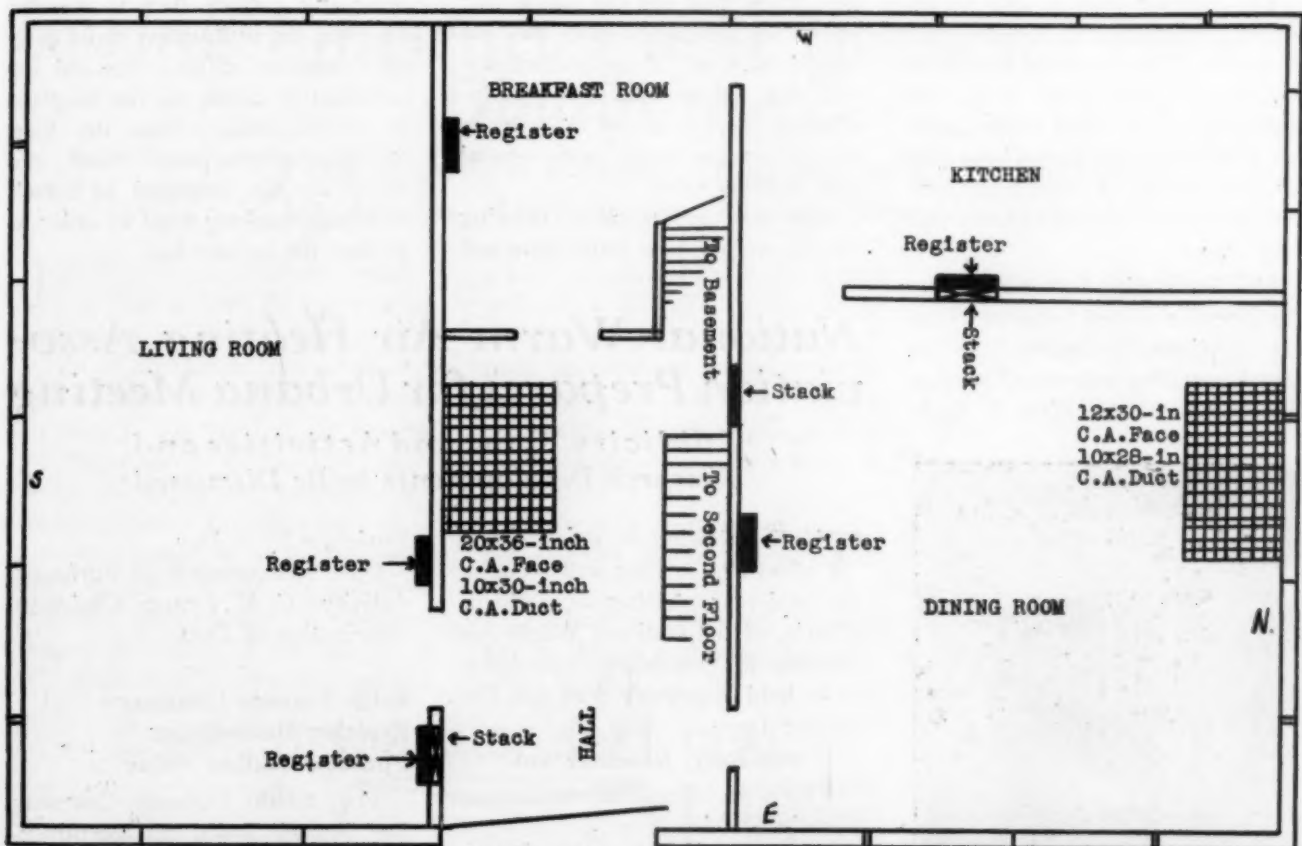


Figure 5—First Floor Plan in Harold Rubens' Gas-Fired Warm Air Heated Home, Showing Location of Registers, Stacks and Cold Air Faces. The 20x36-Inch Face Is Directly Over Furnace No. 2, While the 12x30-inch Face Returns the Air to Furnace No. 1

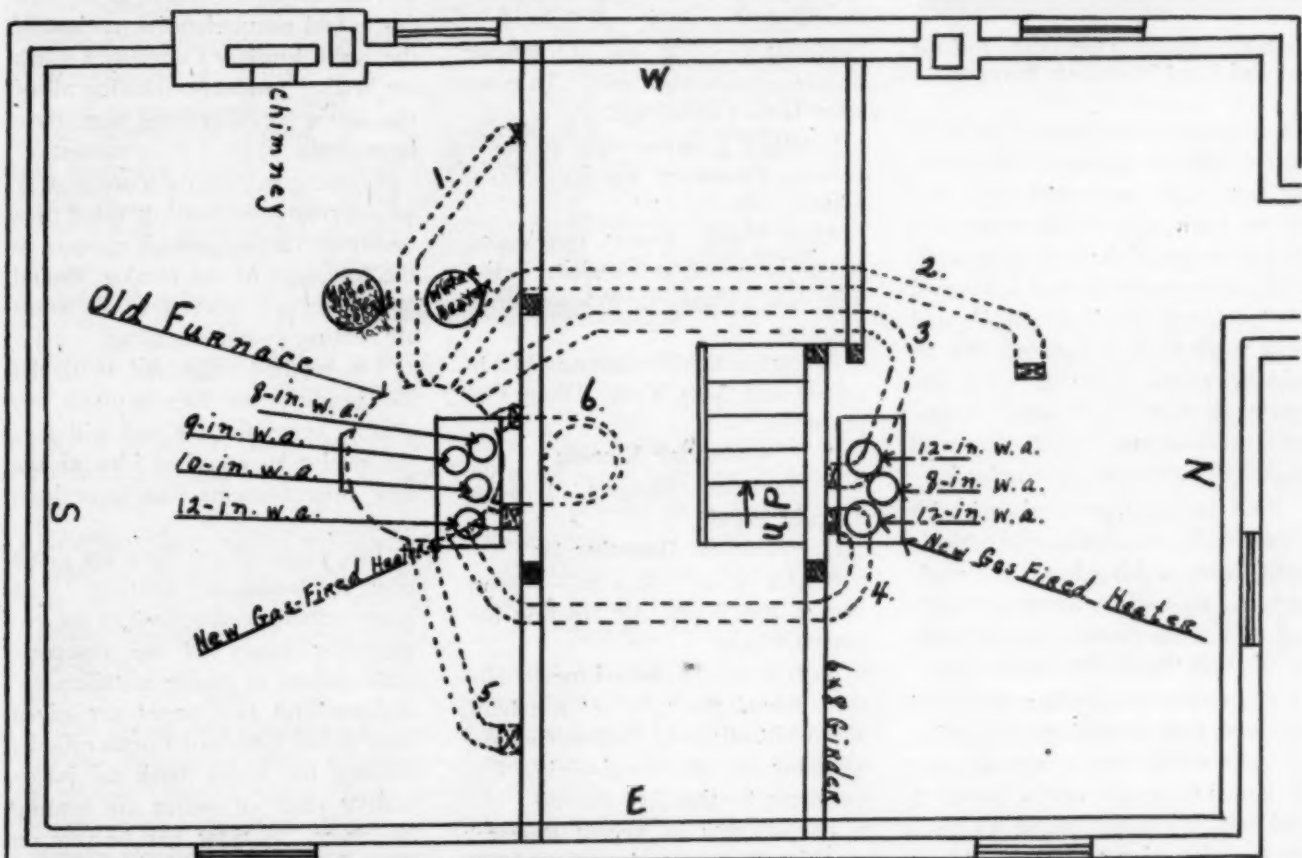


Figure 6—Basement Plan of the Harold Rubens Home, Showing the Location of the Two Gas-Fired Warm Air Furnaces and the Location of the Old Furnace That Was Removed. Dotted Lines Give Position Old Furnace and Ducts Occupied. Note Long, Curving Warm Air Runs Numbers 2, 3 and 4 and How They Swing Around and Back Track Upon Themselves. Note Also How Warm Airs Are All Taken from Just Half of Bonnet

The cold air boot is also visible in this illustration, but a better view of it as had by referring to Figure No. 3. As this point it is also desired to call attention to the clean-out placed in the bottom of the cold air shoe by special request for convenience in recovering objects that may drop it.

This installation was made under the direction of the Superior Heating Appliance Company, but the actual installing was done, as mentioned above, by William F. Wah-

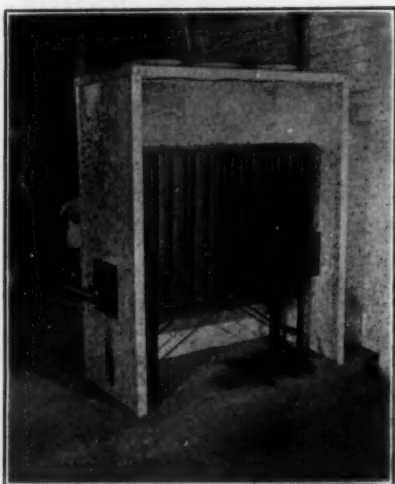


Figure 7—Showing the Interior of the Gas-Fired Warm Air Furnace

ler, warm air furnace installer, 3717 Elston Avenue, Chicago. Mr. Wahler personally supervised each step of the work and a mighty neat job he has made of it; this is appreciated all the more when it is learned that, although the basement is used as a work shop, a laundry and an ironing room, there is only one warm air duct which actually compels the occupant to tilt the head slightly in order to pass under it.

Both furnaces are equipped with Honeywell heat regulators, Hygienic humidifiers making it a most modern and up-to-date warm air heating unit. The owners are well satisfied with the entire installation.

The entire system has very well accomplished its object in getting away from the long warm air runs. It is compact and neatly installed, and will no doubt prove to be a great satisfaction to its owner.

It was stated at the beginning of

this article that the old single unit warm air heating system was removed because of its inefficiency. Not that the system itself was inefficient, but that the installation was so poorly made, with several long winding runs.

One look at Figure 6 showing the old and the new installation will

cause any furnace man to wonder how the old installation could possibly function at all. The old installation is shown on the diagram in broken lines. Note the long circuitous routes over which the warm air was expected to travel, then back tracking itself in order to get into the register box.

National Warm Air Heating Association Prepares for Urbana Meeting

Publicity Plans and Activities and Research Developments to Be Discussed

THE following is the program of events as they will occur at the Mid-year meeting at Urbana, Illinois, of the National Warm Air Heating & Ventilating Association to be held November 30th and December 1st:

Wednesday, November 30th

9:00 a. m.—Registration, Urbana-Lincoln Hotel.

10:00 a. m.—Call to order, President Hall.

Welcome—David F. Kinley, President, University of Illinois.

Standard Code and Ordinance Forms—J. D. Hoffman, Chairman Joint Code Committee.

Publicity Progress—H. T. Richardson, Chairman Publicity Committee.

12:00 Noon—Recess, one hour.

1:00 p. m.—Our Publicity Activities and Plans, L. Wayne Arny, Director.

Address—W. B. Barrus, Washington and New York, "Your Opportunity."

Wednesday Evening

6:30 p. m.—Banquet, Urbana-Lincoln Hotel.

Thursday, December 1st

8:00 a. m. to 9:30 a. m.—Inspection of the Warm Air Heating Research House.

9:30 a. m.—Urbana-Lincoln Hotel. Introductory, M. S. Ketchum, Dean of College of Engineering and Director of the Engineering Experiment Station.

Presentation of Recent Research Developments—Professor A. C. Willard, Professor A. P. Kratz,

Professor V. S. Day.

Our "Measurement of Furnaces" Activity—C. M. Lyman, Chairman, Distribution of Data.

Keith Furnace Company Explains Determining Furnace Heating Value

The Keith Furnace Company, Des Moines, Iowa, has recently issued its latest warm air furnace catalog, which is No. 16.

This 40-page booklet is a composite and comprehensive review of the Keith Furnace Company's warm air heating products, showing all of the latest developments that have been made.

A statement of the correct way to determine the heating value of a warm air furnace, which appears in the fore part of the catalog, should be of extreme interest to all warm air heating system installers.

The method employed to depict the products as they actually appear is very effective and will give the reader an excellent idea of the new improvements that have been made.

Two pages of the book are given over to forced air heating. One page contains a statement of the engineering policy of the company with respect to giving installers assistance and two pages are given over to the Standard Furnace Code, making the entire book an informative piece of warm air heating literature. A copy will be sent on request made to the Keith Furnace Company, Des Moines, Iowa.

Firing Efficiencies and Hints on How to Obtain the Best

Five Rules on Correct Burning of Coke Given— Hints on Anthracite Firing Worth Reading

IN USING anthracite coal remember that at least 80 per cent of its heat is given off as radiant heat from glowing coal, and it is best suited, therefore, to those furnaces having a large amount of heating surface exposed to the direct radiation from the fuel bed. The intensity of this radiation heat is in direct proportion to the temperature of the fuel bed, so that most efficient performance is obtained when the surface of the fuel bed is glowing brightly. In severe weather

a layer of ash on the grate surface and with a minimum of air. It responds very quickly to air and care must be used not to overheat the furnace.

The directions for burning coke can be condensed into five rules, as follows:

1. Carry a deep bed of fuel; a bed about 18 inches thick gives best results.
2. Use very little draft after the fire is started and keep it always under control.

nance causes a very heavy heat loss and sooting up of the heat surfaces, which renders them partially ineffective.

This is the fallacy of the so-called hot blast or gas consuming device, which admits air only. This is not sufficient. Temperature is also necessary, hence careful firing will better maintain a proper and economical combustion than any artificial method or with any so-called smoke-consuming device.

To Fire Soft Coal

1. The first and most important thing to remember when burning soft coal is: Never entirely cover the fire bed with fresh coal, because the gases will be given off faster than they can be burned and smoke and soot will be the result. Allow some red coals to remain exposed so that the gases from the fresh coal will pass over the glowing coals and be burned. This prevents or reduces smoke and soot. If you see smoke or smell gas escaping from a furnace, wrong methods are being used.

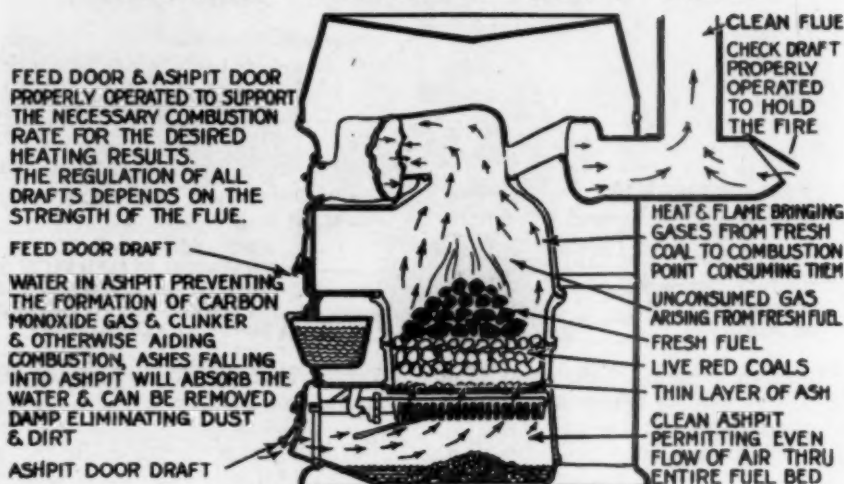
2. Clean the ashes from the firepot to the extent that conditions require by shaking the grate.

3. Remove the ashes and fill the bottom of the ashpit with water daily. The water pan should also be filled daily.

4. See that live coals are spread evenly over the grates.

5. Wet the coal to be fired and pile the charge as nearly as possible in the center of the firepot. Allow the draft in ashpit door to remain open until the fresh coal is sufficiently ignited, then the fire can be checked, allowing only enough draft to maintain a sufficient combustion rate to provide a satisfactory heating result. The next firing period will depend upon weather and other conditions affecting the fuel consumption.

CORRECT FIRING OF SOFT COAL



Showing the Correct Method of Building a Bed of Coals in the Fire Pot for the Burning of Soft Coal

only a relatively small amount of fresh fuel should be added at any one time.

Anthracite requires a well-defined draft up through the fuel bed and but little or no air over the fire through the grid or damper in the fire door.

Coke

The use of coke sometimes causes trouble on account of its relatively small ash content, which allows it to burn with a minimum of air and permits the fire coming into direct contact with the grates. It should, therefore, be burning always with

3. Do not stir the fuel bed; clean the fire in the morning if possible.

4. Use sized coke; $\frac{1}{2}$ to 2 inches for furnace.

5. Do not allow ashes to accumulate in ash pit.

Soft Coal Treatment

The householder probably has most trouble in burning soft or bituminous coal. Anthracite contains only about 10 per cent of combustible volatile matter, whereas soft coals average from 20 to 40 per cent. This volatile matter or coal gas is driven off at low temperatures and if not burned in the fur-

The check draft should always be closed and the ashpit draft opened when firing the furnace. The correct regulation of the drafts will depend on the strength of the flue. Experience alone can determine the proper regulation for best results.

The Result of Correct Firing

The clean ashpit permits of a uniform flow of air through the fire bed and saves the grates from injury.

The water in the ashpit aids combustion and materially prevents the forming of clinkers. Ashes can also then be removed without dust.

Wetting the coal prevents immediate release of heavy clouds of smoke or gas. The heat and flame from the outside of the fire raises the temperature of the gases released from the coal to the combustion point. A little air through the feed door supplies the necessary oxygen to support this combustion.

Different grades of soft coal and the strength of the flue affect the regulation of the feed door draft. A little experimenting will indicate how it should be set.

It is better to admit too little air than too much. The latter would be of benefit only immediately after firing to aid the combustion of the first release of gases. After the fresh fuel has been on the live fuel bed a few minutes the first rush of released gas is over, then an excess of air over the top of the fire reduces the temperature and results in corresponding loss in fuel economy.

An excess of air as introduced by most hot blast or gas burning devices are efficient only for the first few minutes after firing. After that period they provide too much air and waste fuel. Gas from soft coal can be best consumed by efficient firing.

The proper regulation of check and ashpit draft can best be accomplished by an efficient draft regulator.

Economies

Heat is radiated directly from both furnace and pipes and all good

installations have these covered with insulating material.

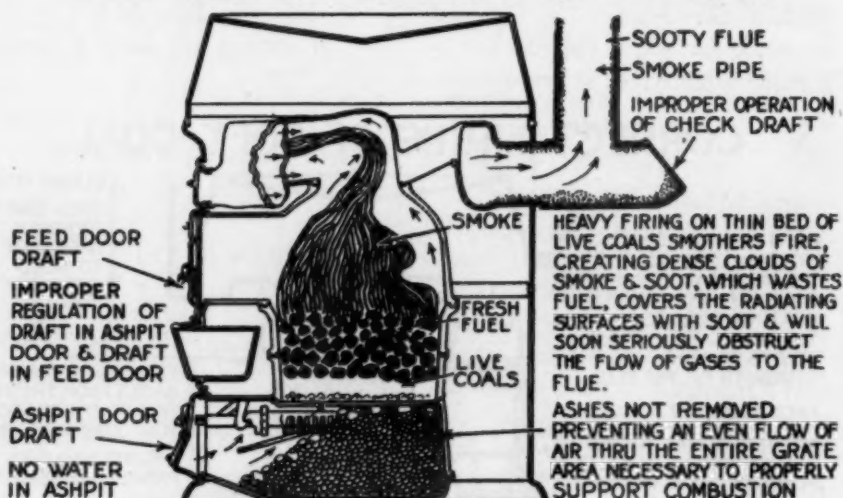
Another prolific source of heat loss in domestic furnaces arises from soot on heating surfaces: It has been determined that an ordinary dirty surface covered with one-sixteenth of an inch of soot reduces the effectiveness of that surface as a heat absorber 20 per cent. In many furnaces will be found an accumulation of as much as a half inch of soot. It is no wonder that hard firing is necessary under such circumstances to keep the house warm.

The life of the smoke pipe may

per minute into a room around an ordinary window. Figuring the number of such windows on the exposed side of the ordinary house, it can be easily seen what a tremendous amount of excess air alone has frequently resulted in a 15 per cent coal saving, not considering the greater ease of keeping warm rooms. Good, tight storm sash are especially effective on the exposed side of a house.

The greater the humidity (moisture content) of the air up to 70 per cent, the lower is the temperature required for comfort. Keep the air in the house moist by keep-

INEFFICIENT FIRING OF SOFT COAL



Illustrating Some of the Most Common Errors That Are Made in Firing the Warm Air Furnace When Burning Soft Coal

be lengthened many times by taking it down in the spring when the furnace is put out of commission, thoroughly cleaning it and storing it where it will not get damp. Soot from soft coal contains a certain amount of sulphur dioxide, which, when combined with water, produces sulphuric acid, which, in turn, will quickly eat through metal. While the furnace is warm the moisture cannot collect, so that it is in the summer months and the furnace gets damp that this acid attacks the smoke pipe.

It is surprising the amount of fuel that can be saved by making all doors and windows tight by use of weather strips or their equivalent. A moderately strong wind will force sixteen cubic feet of air

ing the water container in the air jacket filled. The heat will be healthier, with less coal burned.

Precautions

Anthracite coal or coke can be stocked with perfect safety. With soft coal some precautions must be taken, of which the following are the most important:

There should be no waste material left in the bin, such as old rags, oily waste, pieces of wood and the like. The bin should be thoroughly cleaned and such matter removed before the coal is put in.

Soft coal should never be piled against a steam or hot water pipe or any source of heat. It should never be wet in the pile, but may be dampened slightly when required.

Be sure that the smoke pipe does not project into the chimney flue, to do so will cut off the draught and

the furnace will not draw properly.

Clean the base of the chimney thoroughly each season.

Niehaus Furnace Repair Co. Completes New 5-Story Home in Cincinnati

*Company Also Maintains
Warehouse in Cleveland, Ohio*

THE Niehaus Furnace Repair Company, Cincinnati, Ohio, has just recently moved into its new

where today the Niehaus Furnace Repair Company is doing a very handsome business in furnishing



Showing the New Home of the Niehaus Furnace Repair Company, Cincinnati, Ohio, Into Which the Firm Recently Moved.

home, a photograph of which is shown in this issue.

The building now being occupied by the Niehaus Furnace Repair Company consists of five floors and a basement. Each floor contains 8,500 square feet, in which is carried a stock of furnace, boiler and stove repairs for all makes of stoves, boilers and furnaces. A complete stock of furnaces and furnace accessories are also carried, making it possible to ship repairs the same day the order is received.

The officers of the company are Clifford J. Niehaus, President and Treasurer; Harry A. Niehaus, Vice President; George H. Cook, Jr., Secretary.

About five years ago Clifford J. Niehaus, then employed by the John B. Morris Company, had an inspiration. This he worked out to a point

furnace, stove, and boiler repairs, as well as selling furnace and furnace accessories. The company, in addition to its five floors in Cincinnati, also maintains a warehouse in

Cleveland, from which it takes care of part of the business.

Independent Register & Manufacturing Co. Issues New Register Catalog

A new 40-page pamphlet on registers has made its appearance from the Independent Register and Manufacturing Company, 3741 East 93rd Street, Cleveland, Ohio.

The issue is replete with all the latest designs of register manufacture that have been released by the Independent Register and Manufacturing Company, including wrought steel registers and faces, floor boarders, adjustable ceiling and wall ventilators, smoke pipe registers, "Fabricated" register faces and grilles, pipeless furnace gratings and furnace pokers and scrapers.

The paper used in the production of this interesting little pamphlet is of a grade that shows the register as nearly life-like as it is possible for printer's ink and paper to do.

The company has recently completed a new daylight factory and cordially invites anyone interested to visit them whenever in Cleveland. In the meantime a copy of this catalog should be requested for your files as soon as possible.

If you have one or two good photographs of Christmas window displays or Christmas advertisements, send them to us for use in AMERICAN ARTISAN.



Group of Huskies Representing a Portion of the Niehaus Furnace Repair Company's Organization at Cincinnati, Ohio

Credit Survey Sees No Considerable Business Change

No marked change in business conditions is anticipated by the National Association of Credit Men for at least four or five months. The October monthly business survey conducted by the association finds agricultural conditions fair or slightly better than fair, money easy and credit under good control.

"Two encouraging factors in the present business situation," the survey says, "are the optimism of the country's bankers and the fact that the new Ford models are now being turned out and that the company will soon begin deliveries against a total of about 375,000 accumulated orders.

"Production continues spotty, with the leaders—steel and motor manufacture—decidedly sluggish.

"Building contracts awarded in September dropped about 6 per cent as compared with August, but public work and utilities are so active in construction projects that no building slump is likely to materialize for some time.

"Commodity price levels have changed but little. Fisher's Index stood at 146.2 on October 21, and Crump's Index at 135.3. Car loadings continue at a satisfactory level. The week ending October 8 was the twenty-fourth week of 1927 to show loadings aggregating more than 1,000,000 cars. Bank clearings for the week ending October 20 totaled \$11,420,706,000, an increase of 25.9 per cent over the preceding week and of 8.4 per cent over the corresponding week of 1926."

The survey continues:

The generous attitude of wholesalers and manufacturers dealing directly with retailers has helped appreciably to rehabilitate retail business in the six states under survey, particularly in the territory affected by the big storm of about a year ago.

"Building activity has continued at an encouraging rate, and the morale of retail merchants has materially improved. With cotton prices high and tobacco low, the

agricultural situation is somewhat confused, but in general it is fair to say that there is a much better balance between farm and industrial products in 1927 than existed in 1926.

Ten Rules for Figuring the Cost of Running Your Business

Here are ten rules for accurately figuring costs of doing business:

1. Charge interest on the net amount of your total investment exclusive of real estate.

2. If you own real estate or buildings used in business, charge rent for them equal to the amount they would bring if rented to someone else.

3. For your own services, and those of any members of the family, who assist in the business without pay, charge an amount equal to what these services would be worth to others, adding this item to the cost of hired help.

4. Charge depreciation on all goods on which you have to cut the price for any reason.

5. Also charge depreciation on building, fixtures or anything else which time and use depreciate.

6. Charge amounts donated or subscriptions paid.

7. Charge all fixed expense as water, light, fuel, taxes, insurance, etc.

8. Incidental expenses such as drayage, postage, livery expenses, office supplies, telegrams, telephone, advertising, canvassing, etc., must be charged, as well as losses of all sorts (including goods stolen, goods sent out and not charged, allowance made customers, bad debts, and the cost of collecting bills). Also charge any other expenses not mentioned above.

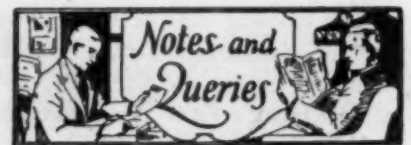
National Construction Exposition to Include Half-Acre of Outdoor-Displayed Equipment

Although work on the National Construction Exposition was begun only a little more than two months ago, some 50 equipment and materials companies or allied trade groups from eleven different states

and the District of Columbia have made arrangements to have exhibits. The exposition will be held at West Baden, Indiana, January 23-27, in conjunction with the ninth annual convention of the Associated General Contractors of America. The states already represented among the companies which are preparing exhibits are Delaware, Illinois, Indiana, Iowa, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania and Wisconsin.

Moreover, the exposition management has announced, arrangements have been completed with the West Baden Springs Hotel, which will house the exposition, for the use of a half acre of outdoor display area for the placing and demonstration of very large and bulky construction equipment and machinery, the operation of which would be impossible within the hotel, and more than half of this outdoor space has been placed under reservation by exhibitors at this time.

Arrangements have been completed for a making of first, second and third awards by the Associated General Contractors of America to the companies having displays adjudged the most effective. Awards will be determined by a committee of representative general contractors, members of the A. G. C., the personnel of which will be announced at the exposition.



Allen Tinning Salts

From Frank Berryhill, Ardmore, Oklahoma.

Please inform me where I can get Allen's Tinning Salts.

Ans.—L. B. Allen Company, Incorporated, 4519 North Lincoln Street, Chicago, Illinois.

Zeolite Water Softener

From Cecil C. Coon, 131 East Chestnut Street, Wauseon, Ohio.

Please tell me where I can obtain Zeolite for water softener.

Ans.—The Permutit Company, 440 Fourth Avenue, New York City. This concern has a branch at Cleveland and also Cincinnati, Ohio.

**Herbert H. Davis Company,
Inc., Issues Instructive
Booklet on Fan Blast Heating**

The Herbert H. Davis Company, Inc., 4146 South Western Avenue, Chicago, Illinois, experts on fan blast warm air heating, have issued a booklet on hot blast warm air heating containing data useful to warm air heating men who are desirous of learning more about the installation of warm air heating systems for the larger type buildings, such as churches, schools, factories, large homes and mercantile buildings.



Illustrated Cover of Booklet

Every heating man knows that the blast type of heating for large buildings has in the past not enjoyed the popularity its merits warrant. This failure of the public to recognize the merits of the fan blast type of heating system is due in a great measure to the fact that architects and heating engineers have not been fully informed, consequently the public has not had its attention called to this type of heating system.

The purpose of the booklet issued by the Herbert H. Davis Company, Inc., is to supply that want to engineers and architects. There is no denying that the warm air furnace installer who can talk to the architect and the public in convincing terms about the heating system he is trying to sell is the man who gets the business. Unfortunately for the warm air heating industry in all its phases, there are very few such men now in that end of the industry which is meeting the public.

It is not that these men have not the intelligence to make a proper plea, but it is due rather to the fact that they have not the information

at their command which would enable them to present to the public the merits of this type of heating.

Every warm air furnace installer who is at all interested in learning more about these larger fan blast installations should write to the Herbert H. Davis Company, Inc., 4146 South Western Avenue, Chicago, and secure a copy of this booklet. It will pay many times over.

**Frank Fischer, Woodbine, Ill.,
Installer, Injured in Fighting
Fire at Home of Elmer Hermann**

Frank F. Fischer, warm air furnace installer at Woodbine, Illinois, was severely burned and injured about the hands and arms October 20th when he attempted to assist the firemen in extinguishing the burning home of Elmer Hermann of that city.

Mr. Fischer, who also operates a hardware store in connection with his warm air furnace business, ran to the scene of the fire with a 2½-gallon fire extinguisher. He attempted to climb the stairs to the second floor of the burning building. The stairs collapsed and Mr. Fischer was pitched into the basement amid the burning embers. There being no outside door leading to the basement, Mr. Fischer found himself directly in a very perilous position. He used his fire extinguisher to good advantage and was finally rescued by his fellow fire fighters. His left hand was badly torn at the wrist and his right arm was very badly burned.

According to James Charles Allan, Mr. Fischer says the Standard Code is all right for installing furnaces, but when it comes to fighting fire, one has to use his head.

**Copper & Brass Research
Finds Copper Excellent
Metal for Vault Construction**

Perfection of a new type of bank vault that is virtually immune to burglar attack through the use of copper in construction is the latest announcement by the Copper and Brass Research Association. According to the association, exhaus-

tive tests just completed show that the oxy-acetylene torch, recognized by safe experts as the most powerful instrument of vault attack, requires approximately two hours to penetrate a plate of pure copper seven inches thick.

In commenting on the significance of these tests, the association points out that a vault burglar would require about six hours of uninterrupted effort with the oxy-acetylene torch to penetrate a modern vault door twenty inches thick, containing a twelve-inch plate of pure copper.

"The high resistance of copper to torch attack is explained by the fact that this metal is a rapid conductor of heat, in contrast with other metals of low heat conductivity heretofore used in vault construction. A torch capable of developing a heat between 5,000 and 6,000 degrees Fahrenheit will penetrate the first few inches of a copper plate in a comparatively short time. However, the flame loses its efficiency as the copper conducts the heat rapidly away before the entire body of the metal can be raised to a fusing point.

"Safe burglars will find discouragement in the results of these tests," say the association, "since the cumbersome equipment and the large amount of time required to penetrate the thick copper plate provide a virtually insurmountable obstacle."

That a need exists for vault construction which will provide the utmost resistance to attack is indicated by the increase in the number of successful bank burglaries. As reported to the American Bankers' Association, the number of bank burglaries during the fiscal year ending August 31, 1927, showed an increase of approximately 43 per cent over ten years ago.

As an indication of the importance which bankers, architects and vault engineers attach to this latest development in vault construction, the association points out that the vaults of the largest bank in Asia, the new \$14,000,000 Mitsui Bank Building in Tokyo, will be protected by massive doors containing copper.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

I had a very enjoyable visit with Ed. Stahler, of the G. & S. Stove & Furnace Company, 4223 West North Avenue, Chicago, on Wednesday of this week. Mr. Stahler just returned from Jeannette, Pennsylvania, where his firm is installing a large factory heating job. I also had the pleasure of renewing, while visiting Stahler, my acquaintance with A. R. Gibb, representing the Casper Tin Plate Company, and Mike Hinch, Chicago representative of the Lennox Furnace Company. Mr. Stahler took advantage of an opportunity to visit National Secretary W. C. Markle, with whom he spent one entire evening. He also spent some time with W. F. Angermeyer, secretary of the Pennsylvania Sheet Metal Contractors' Association.

* * *

He Seized It!

"Where are you going in such a hurry?" asked Mrs. Mike Reif.

"Over to Rudy Guenther's house," said Mike. "He has just telephoned to ask if I could lend him a corkscrew, and I'm taking it myself."

"Couldn't you send it?"

"My dear," said Mike, "the question you asked me shows why most women are unfit to lead armies and make quick decisions in business deals involving millions. When the psychological moment arrives they don't know what to do with it."

* * *

The Proof of the Pudding

Ad in the Japan Advertiser (Tokyo): "For sale probably best cook in Tokyo. Employer forced to go on diet to avoid obesity," (the encumbrance of fat).

* * *

Driving Rules

What's remarkable about the number of automobile accidents isn't their number—it's that there aren't more, since most of us follow these rules:

To indicate a right turn—stick out your hand.

To indicate a left turn—stick out your hand.

To indicate that you are about to stop—stick out your hand.

To indicate that you are going to back up—stick out your hand.

To flick the ashes off your cigar—stick out your hand.

To—but you get the idea.

* * *

Roy Harrison, Rudy Furnace Company representative, had left his berth in the sleeper to find a drink of ice water and was hopelessly lost in the middle of the aisle. It was about midnight, and the train was speeding through the country.

"Don't you remember the number of your berth?" asked the conductor.

"I'm—er—afraid not," was the reply.

"Well, haven't you any idea where it was?"

"Why, uh-oh, yes, to be sure!" Roy brightened perceptibly. "I did notice at one time this afternoon that the windows looked out upon a little lake!"

* * *

"Bridget, didn't I hear you quarreling with the milkman?"

"Nope. I just inquired after the health of his sweetie."

"Yes, and how—"

"I says: 'How's the milkmaid?' An' he got in a temper and said, 'That's a trade secret!'"

* * *

Albert B. Cummings, Secretary of the Iowa Travelers' Auxiliary, got into a terrible jam the other day. He had ordered a bureau and the railroad company insisted that he take a Burro.

In the freight terminal of a certain railroad where Mr. Cummings was expecting his shipment they had an Irishman whose business it was to check up shipments, compare freight bills and report what he called the "longs" and "shorts." In other words—report shipments for

which there were no freight bills, and bring in the freight bills covering shipments that had not arrived.

The Irishman reported as follows: "We are 'long' one jackass and 'short' one bureau. I've looked all through the freight house and there's no bureau for the freight bill. And there's no freight bill for the jackass."

The clerk examined the freight bill which covered the shipment of "One Burro," and Mr. Cummings's problem was solved.

* * *

Why He Left

A lawyer called a former news reporter to the witness stand for examination. "Where did you work last?"

"St. Louis Chronicle."

"Why did you leave?"

"Editor and I disagreed on a political question of national importance."

"Before that, and reason for leaving?"

"Lexington Courier, and the editor and I disagreed on a political question of national importance."

Two more papers were named by the witness and the same reason for leaving given in both cases. The judge interfered. "What was the political question of national importance that you could never agree on?"

"Prohibition."

* * *

Conning Herself

A young girl came to the late Father Healey, of Dublin, and confessed that she feared she had incurred the sin of vanity. "What makes you think that?" asked her father confessor.

"Because every morning when I look into the mirror I think how beautiful I am."

"Never fear, my girl," was the reassuring reply. "That isn't a sin; it's only a mistake."

* * *

All in the Postscript

Husband—What is that you are reading, my dear?

Wife—A letter from mother.

"Anything important in it?"

"I don't know; I haven't got to the postscript yet?"

The Editor's Conning Tower

Aiding the Public in Making Its Own Intelligent Selections

ARATHER unusual and somewhat humorous situation was called to my attention recently by S. A. Knisely, Director of Advertising and Publicity of the Sheet Steel Trade Extension Committee.

It all came about in this way: M. E. Tracy, who conducts a column in the *Pittsburgh Press* under the heading of "Tracy Says," made the remark in his column that inasmuch as there were now steel Pullman cars, steel steamships, why not a steel house? "Steel cars, steel ships," went on Mr. Tracy, "are waterproof, fireproof and comparatively free from depreciation." From this he drew the conclusion that a steel house would likewise offer its owner similar protections, with the consequent freedom from many worries.

No sooner had the paper appeared on the streets than Mr. Tracy and the *Pittsburgh Press* began to receive letters from the lumber interests requesting that he retract his statements, which in their minds were discriminatory and detrimental to the best interests of the lumber industry. One writer even went so far as to prepare a carefully written retraction for Mr. Tracy's use.

Needless to say that Mr. Tracy did not use the "manufactured retraction," nor did he prepare one of his own. In another issue, some few days later, he took up the discussion at considerable length, stating that he had no disposition to be unfair to the lumber trade; that he realized that the lumber trade had as much right to seek to enlarge its markets as any other trade had, but he also wished to remind the lumber trade and other trades that he as a consumer maintained the right of selection.

In all phases of industry there are men who entertain the mistaken idea that by waving an advertising contract in the face of a publisher they can cajole him into censoring from his publication information of benefit to the public but which to the minds of these men is detrimental to their particular business.

In this they take the short-sighted policy, because as long as the public has and exercises the right of selection an industry is not going to further its own ends by misleading that public into buying products which will not do the work for which they were purchased as efficiently as some other product or material. If steel is a better material for some building purposes than wood, then why should the public not be allowed to use steel for that building instead of wood?

If the young man who so carefully prepared the retraction statement for Mr. Tracy had turned his energies toward finding new uses for lumber where steel would not do, and there are many, he would have been too busy to write retractions, and further he would have been doing a real service to the public.

Associations such as the Sheet Steel Trade Extension Committee, the Copper & Brass Research Association, the American Zinc Institute and many others owe their very existence to the fact that more is to be gained in the long run by the industries they represent by discovering for the public the real facts about their several products and their most useful place in the general scheme of things than by total calculated indifference. Common sense tells them that all materials are not equally suitable for a given work. Therefore if each industry concentrates upon that phase of activity to which its products are best suited, the public is going to have real service in return for the money it spends, because there will be no misfits. The misfits are what give the industry its "black eyes."

If steel houses have more endurance than wooden houses; if steel houses reduce the fire hazards, insurance premiums and rate of depreciation, and at the same time can be made equally as artistic as the wooden houses, if not more so, then what excuse is there for keeping the public from enjoying these added advantages?

Where two or more entirely unrelated industries come into conflict in this way, the fault is not with the public, but rather with the industry that has not kept pace with the change in public demand. The public always will maintain the right of selection, and it is up to industry to see to it that its products are always the best for a given purpose and that the public is kept constantly and reliably informed of that fact.

What the "Higher Nobility" of Today Includes

IN A RECENT issue of a Middletown, Ohio, daily newspaper there appeared an advertisement of the American Rolling Mill Company carrying a tribute to the Ohio State Federation of Labor meeting there for its annual convention.

Employers of labor—capital—has certainly reversed its attitude of a few years ago toward labor. The executive branch of industry has learned that by giving labor its due it can gain a great deal more than by pursuing a policy of grinding its employees down under its heel.

There is another far more important aspect to this joining of hands of capital and labor. Henry Ford is generally given the credit for at least being the first to put it into operation. And that is the realization that labor itself is the largest potential market for the products that it manufactures.

The extent of labor's potentiality as a buyer of products is measured by the extent of his buying power. Therefore if his buying power is increased, he is going to be in the market for a greater number of the products of his won labor.

Describing Method of Constructing Pattern for Transitional Elbow

*Description Given in Response to Inquiry
by Fred Conn, Louisville, Kentucky*

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis

RESPONDING to the inquiry of Fred Conn, of Louisville, Kentucky, I am submitting a development for the elbow, according to sketch furnished.

An elbow of this kind is rather an odd thing—or I should say an exception—since most tradesmen would make the elbow portion rectangle and the lower section would be made to a square to round. That would be much quicker, and require less work, as well as be less wasteful of material. But to make an elbow according to sketch, we first place measurements for a side elevation.

This is done by drawing a right angle and from the corner a, measure off the distance given. Next with the radius R, made to the radius W, the center arc, or quarter circle is described. Divide this quadrant into the spaces to make the desired number of gore pieces. In this case we use five gores, so that we divide the quadrant into 8 equal spaces. If you desire 7 gores, then you use the method used for elbows, and you arrive at 12 spaces, as $7 \times 2 = 14$, minus 2 gives us 12, and this allows us to draw the miter lines.

After this we describe the section "A" to correspond to its required diameter, and measure for the section "B." Right here, we should say, that the correspondent's sketch called for a 12-inch round pipe and a rectangle pipe 6 by 42 inches. Now the enlargement of the section "B" to about twice the area of the round pipe, it is no doubt due to a desire to cut down on the velocity of the air at this point. However, in our case, we shall seek to equalize the area in that a 12-inch circle contains 113 square inches, and if we divide this by 6 as the width, then we arrive at a length of

approximately 20 inches. This will accommodate all the area of the 12-inch stack, and it is only where the velocity must be reduced that the enlargement of 42 inches as the length would be used. In that case the same mechanical procedure would be followed.

We here have five gores; two of them, I and V, can be laid out the same as any ordinary elbow pattern, as we show at I and V. The other three, II-III-IV, must be treated by triangulation, and so we must first find the flat sides of the ends. This is best done by means of an equalizing scale, as at W; where a-b is the radius of the miter D, as 1-7, while a-c is the radius of the miter G of section V. Since we have two miter lines to be proportioned, we can divide c-b into three equal spaces, and with a-1 as radius, and the arc mark off the width of section F, stepping on each side of the center arc. Next with a-2 as radius, mark the miter points 2 and 14 from the center arc for miter E. The same spaces of the scale as c-1 is used to establish points 8 and 8' of miter E. The spaces c-2 are used for locating the flat side of miter F. This then allows for drawing the outline of elevation, as well as the flat sides leading from nothing at 7 to the full width at G.

After this describe the sections E and F, and divide each quarter circle in a suitable number of equal spaces so all sections will match up nicely. Observe, these sections E and F are on the side, while owing to the length of section "B," the throat and heel will have longer sections. This can be determined by the scale X, where m-n is half the diameter of section "A" or "C," while m-c is the half length of "B." If we divide n-c in three equal parts, we receive the points p and q. With

the aid of these points p and q, we can measure the length of sections E" and F". Here the quarter circles are made to the same radius as those in side elevation, and if desired, by the means of these sections E", "C" and F", we can develop the throat elevation as shown by the miter sections D'-E'-F', and this will enable us to make an elevation view by connecting the lines with points as shown. But in practice this elevation is not necessary, since we have all the data for true lengths in the side elevation with the sections E" and F" with the scale X.

Beyond this, a person must follow the same procedure as for any triangulation fitting. Thus we develop the true lengths by means of the elevation lines for gore II in this case, and using the horizontals in section E" and "A" for altitudinals. Then we develop the pattern for gore I, so we can use the girth spaces 1-3-5-7-9, etc., to use in developing the base of the pattern for gore II, since these two edges must fit together.

For the girth along the top of gore II, we use the spaces from section E and the long space of throat and heel of E". Otherwise the patterns for the middle gore pieces are developed the same as any triangulation fitting.

Men who tackle problems like this are supposed to know quite a bit about triangulation and its treatments, and so it is not necessary to detail every step. Men who have never done much of this sort of work—all the explanation in the world will not make it clear to them until their mind has been gradually expanded to comprehend this work. All patterns will be net, and edges must be allowed extra on all patterns.

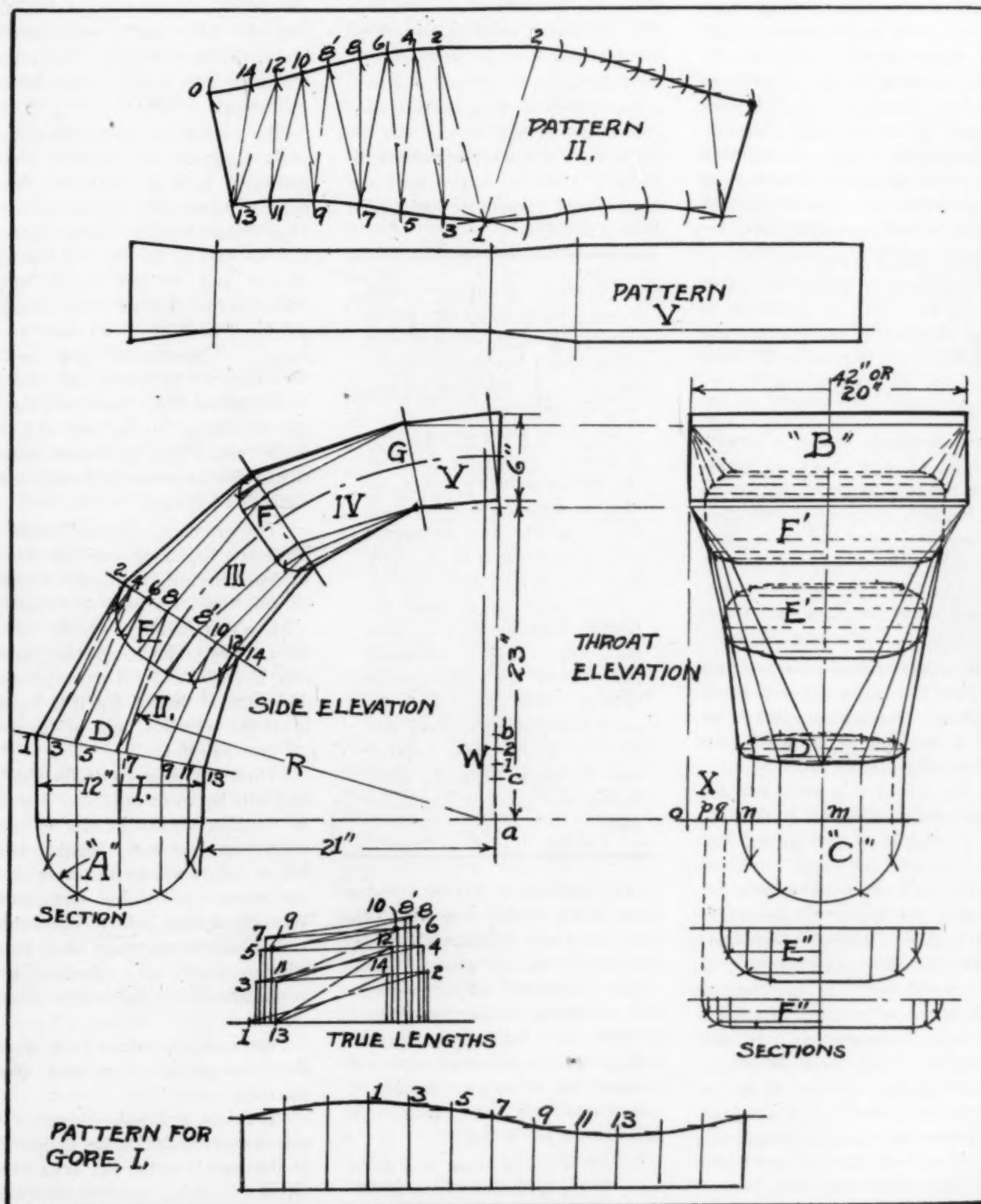
Be Sure You're Right Then Go Ahead

"Never regret a mistake or waste time thinking about how sorry you are you made one. Make a decision, then act. If you are wrong, admit your mistake or error; then go ahead and do the right thing as

you see it. Never bluff or try to cover up your mistakes. Mistakes profit you if you profit by them."—Charles M. Schwab.

Sheet metal contractors and warm air heating men of the more progressive type are in the habit of

making special window displays for Thanksgiving and Christmas in order to compete for public attention along with other stores. If you have some good Christmas window display photographs, send them to us for use in showing other men in the industry how they are made,



Patterns for Transitional Elbow

All-Steel Dwelling Idea Taking Root in Minds of Prominent Architects

Lumber Interests Watch Cat-Like the Spreading of the Idea to the Public

SOME time ago there appeared an article in AMERICAN ARTISAN under the title, "Day of All-Steel Dwelling Looms Rapidly on Building Horizon," by Bennett Chapple on the advent of the all-steel dwelling house. At the time that article appeared it had more of the earmarks of a prediction than of fact, at least so it appeared.

Since then, however, the idea of all-steel dwelling houses has taken root in the minds of architects in many sections of the country and these men are beginning to show signs that they are giving serious thought to it.

For instance, Robert Tappan, architect of New York, in speaking at the convention of the American Institute of Steel Construction at Pinehurst, stated that he had been invited by a director of the institute to try to apply his ideas of standardized house design to steel frame construction. Continuing, he said:

"It is perfectly possible to fabricate steel frames for the small house or cottage. The real question in regard to steel-framed houses is how economically can the work be done, and for how low a price can the completed house be sold to the public? Obviously a steel-framed cottage, properly enclosed, insulated and equipped, represents a better investment to the home buying public than a similar house, with similar equipment, constructed of wood or of wood and masonry.

"A house with a steel frame is practically indestructible. It will not shrink, warp, swell or rot; it will not harbor vermin; it can be and should be insulated against heat, cold and sound; it is lightning proof, it can be made tornado proof and earthquake proof—and even be protected against possible explosions in the cellar, all of which should bring

down the insurance rates and simplify the matter of financing. What more do you want for your money?

"I am happy to tell you that such a house, in New York at least, need cost no more than wood. Let me try to show you why, and please remember that my experiences and experiments center in and about New York City.

The idea of the all-steel house is not a myth or an idle poetic fancy. It is already a reality which requires only the breaking down of tradition to put into universal use.

No better proof of this need be pointed to than the fact that the lumber industry thinks the idea has gone so far that it must watch cat-like the statements made concerning it in the daily press and curb them if possible.

But regardless of what the lumber industry does to stem the tide, public sentiment will sooner or later break through their dam and the metal house idea will come into its own in the same manner that the steam boat, the automobile and the flying machine did.

"In building a \$5,000 wooden house today, 40 per cent represents the average cost of materials and 60 per cent the cost of labor. A steel-framed house of similar capacity and equipment would cost about 6 per cent more for the material, but with proper organization and experience the labor item should, by comparison with wood, drop to 50 per cent, or below that.

"Expressing the idea in another way, if the materials for a \$5,000 wooden house cost \$2,000, the materials for a steel-framed house of

similar capacity would cost \$2,300. But the labor on a steel-framed house will be \$2,500 or less, while the same item in a wooden house will amount to \$3,000.

"As a result of some twenty-two years' experience in designing small houses, I have reduced the floor plans of four, five, six and seven-room houses to three simple rectangles, 20 feet by 24 feet; 20 feet by 28 feet, and 20 feet by 32 feet. Please notice that all these rectangles are multiples of four feet squares. The structural steel members required to frame the walls, floors and roofs of these basic plans can be highly standardized and be made nearly 100 per cent interchangeable by properly thought out methods of design.

"Taking these simple standard plans as a beginning, over ten thousand architecturally different houses of which no two need be exactly alike, although all of them would have many interchangeable parts, can be produced. This is a new architectural theory, but it is based upon the soundest laws of nature, art and industry.

"This year over two billion dollars will be spent on cheap houses in America similar in size to the types just described. Another two billion dollars will go into other simple types of wooden structures. Were all of these buildings provided with steel frames, your total steel business would have increased approximately four hundred millions of dollars."

Then making markets treats us to the following, which is highly illuminating:

Prediction is a risky thing. Yet almost everything that has happened in the world so far has been predicted. Not all predictions have materialized, however, and because such failures to materialize are

overwhelmingly in the majority, predictions are regarded more or less askance.

So the reader will be pardoned if he entertains doubts at the prediction that most of us will live to see all-steel houses on every hand. This writer believes with confidence, accelerated somewhat by enthusiasm perhaps, that there is a definite trend now setting in which will result in beautiful, practical, lasting houses made entirely of steel.

The movement toward realization of all-steel houses may be slow at first—probably will be. Tradition—ah, dear old tradition that delays almost everything!—must have its fling. But, pooh for tradition—progress is progress!

Nevertheless, tradition will have its inning at retarding progress toward the all-steel house.

Floundering somewhat wildly in the realm of prediction, one comes face to face with the necessity for backing forecasts with something tangible. In other words, one likes to make predictions sound at least reasonable.

Therefore, the resort of most forecasters is in thrusting forth well-known instances where predictions *have materialized*.

Owing to limited space, this writer cannot take extensive refuge in this practice; but feels, nevertheless, that a few instances may be called to mind which may give seeming weight to his outright claim that all-steel houses will come—and comparatively soon.

In the early days of the automobile, or to put it another way, in the latter days before the automobile, there were a few enthusiasts who were brash enough to predict horseless carriages. By working diligently they finally made their predictions come true. But, of course, tradition had to be served and so the early designs of horseless carriages were indeed just that. And, if rumor can be credited, as an extra tribute to dear old tradition the dashboards of some of the earliest horseless carriages carried whip-sockets!

Less than a hundred years ago a

man invented an instrument by means of which sound might be transmitted and received. This was the telephone. It was pronounced "an interesting toy of no practical value" by most of the folks to whom its inventor, Alexander Graham Bell, exhibited it. Most of them seemed to feel that Mr. Bell might have spent his time a little more usefully.

The very definite oncoming of steel furniture toward ultimate general public acceptance and use is hampered by the reluctance of many to accept steel furniture in other than conventional forms. For example, there is no special reason why an all-steel directors' table in the office of a large corporation should be finished in an imitation of wood grain and have legs four inches square. Steel tables could certainly be built a great deal more sensibly and certainly as beautifully in other more practical forms equally as feasible with steel. But no—tradition must be served. So steel furniture of all kinds is, at present, being built to represent adaptations of wood. This is, of course, temporary and the time will come when steel furniture having the individuality of steel will gain general acceptance.

One of the famous back-acting predictions of literature that came true when its author himself had no idea that it would, is the celebrated adventure of Darius Green which transpired in the vivid imagination of John Townsend Trowbridge.

Trowbridge's poem, entitled "Darius Green and His Flying Machine," was for years looked upon as a classic of Yankee wit and satire and was humorously regarded as a splendid example of how wild-eyed a poet might get if he just permitted his imagination to soar.

Trowbridge's object in writing about Darius Green and his flying machine was to arrive at the culminating moral that one should stick to one's sphere, and if departure be taken from it, one should exercise care as to how one might "light."
". . . To see—The dragon! he's goin' to fly!
Away he goes! Jimminy! what a jump!

Flop-flop—an' plump to the ground with
a thump!
Flutt'rin' an' flound'rin', all'n a lump!
As a demon is hurled by an angel's
spear,
Heels over head, to his proper sphere—
Heels over head, and head over heels,
Dizzily down the abyss he wheels—
So fell Darius."

The poem, of which the foregoing is but a brief fragment, was regarded as an entrancing bit of satire. Ridiculous, but entertaining.

A few years later, within the same century, in a cow pasture near Dayton, Ohio, two young men, regarded by the neighbors as a couple of fools who really ought to go to work, wheeled out a queer looking contraption not much different in general aspect from the contrivance of Darius Green, and one of them hung himself in among the struts and braces in a comical little seat, while the other gave it a push. Right here the century-old tradition that man was not destined to fly met its ignominious Waterloo. The queer looking contraption flew! True, it didn't fly far or high, and "lighting" in it was, even if not as disastrous as Darius Green's experience, still something of an adventure. But it flew. Time and improvement would do the rest. The Wright brothers had conquered the air. Since then a boy has nonchalantly put a biscuit in his pocket, tied the flaps of his leather helmet under his chin, and soared away with his plane into the air above New York to alight in Paris.

So—why not all-steel houses?

We have but to look about us to discover many things made beautifully, lastingly and economically of sheet steel which are improvements over their predecessors that we once thought never could be made of steel. Steel furniture is an example cited at random. The reader will recall others.

Not long ago in Pittsburgh, steel framing for dwelling houses was successfully tried in the construction of the residence of Charles L. Workman on South Negley Avenue. This attempt to use steel beams in a residence was not new, but it was the most pretentious up to that time and its success undoubtedly means that other residences will be built

with "junior beams" shaped in sheet steel.

The house is 28 feet wide and 48 feet long, and contains a living room, dining room, kitchen, pantry and breakfast room on the first floor, and three bedrooms, two baths and dressing room on the second floor. The entire framework of steel junior beams was erected in *four days*—a fact that will influence other builders profoundly.

The walls of the house consist of six-inch junior beams covered on the outside by insulation and a four-inch brick veneer fastened to the studs by wire ties. Note all the trouble that was gone to in order to conform to tradition and have an outside covering of brick. Some day the sense of having an outside covering of sheet steel will be recognized and tradition will be overcome.

On the inside of the house the walls were covered with plaster on metal lath. Again tradition was compromised with. Some day sheet steel, instead of being perforated and "expanded" and then smeared over with plaster, will be accepted on its merits and used for finishing wall interiors without a plaster covering. Why not? In other words, while everything that has been done so far—the Workman house being an example—in the broader and broader use of sheet steel in residence construction, the natural tendency to yield to tradition has militated against the full possibilities for a completer utilization of steel.

No less a thinker about and authority on architecture and architectural matters than Frank Lloyd Wright, himself the creator of a distinctive type of residence design, in an article in the August issue of *Architectural Record*, deplors the fact that architects (he talks of and to architects specifically, but his words can be construed as addressing builders in the broader sense) are too prone to bow to tradition.

"Steel is the epic of this age," says Mr. Wright, and continues: "Steel has entered our lives as a 'material' to take upon itself the physical burden of our civilization.

"This is the Age of Steel. And our 'culture' has received it as ancient Roman culture received the great gift of the masonry arch. For centuries the Romans pasted the trabeated Greek forms of their 'culture' on the arch in front as architecture, while the arch did the work behind.

"Finally the noble virtue of the arch overcame the sham culture of the period and came forth and lived as a great and beautiful contribution to mankind."

Again, referring to steel, Mr. Wright pictures its possibilities and probabilities thus:

"A mere plastic material, thin and yet an ultimate rigidity, rolled hot or rolled cold to any desired section of any strength, unlimited in quantity; or continuously night and day, drawn into thin strands of enormous strength and length as wire—enough to wind the world into a steel-covered ball; or, rolled in any thickness into sheets like paper, cut by the shears into any size.

"A rigidity condensed in any shape conceivable, to be as easily bored, punched, planed, cut and polished, too, as wood once was. More easily and cheaply curved or bent or twisted or woven to any extent and the parts fastened together. A material that in the processes already devised not only takes any shape the human brain can reduce to a diagram, but can go on producing it until the earth is covered with it—and there is no escape from it. No, none!"

In deploring that architects, and probably meaning all builders, conform more or less needlessly to tradition in the designing and planning of structures, Mr. Wright continues:

"An exception here and there is now manifest, already late. This era is fast and furious in movement. But all movement is not progress. Architecture has not progressed with steel. 'Architecture' has all but died of it while architects were singing their favorite hymns and popular Christmas carols to the medieval antique. . . . Can we not

imagine a building to be serviceably beautiful and beautifully serviceable as it is naturally made—in steel? Glass is all that is needed really after we have honestly insured the life of the steel."

Then, carrying on toward his conclusion, Mr. Wright reveals his belief that the young architect must recognize the destiny of steel, in these words:

"The limitation of the human imagination is all that ties the hands of the modern architect except the poison in his veins fostered by 'good taste' for dead forms.

"His imagination now must devise the new cross sections for the machine more suitable for use in harmoniously framing steel. Rivets have interesting effects as well as facts. Steel plates have possibilities combined with posts and beams. And now there is electrical welding to make the work more simple and integral.

"The design may emphasize the plastic as structural or the structural as plastic. What this means in detail is a liberal education in itself. It must be had by the young architect. He will have to go to work at it himself."

So, with all of that, and with all that has gone before, and with all that can be seen as coming on apace, this writer believes that it is not over-optimistic or over-enthusiastic or over-ambitious to predict that the all-steel house will come; that it will come soon, and that it will become general. This prediction is not narrowed down to a type or a style, or an expediency or a restriction. In the writer's meaning, the prediction that the all-steel house will come involves every residential type from the cottage to the so-called palace.

Pooh for tradition—progress is progress.

In addition to these instances of the possibility of the all-steel dwelling coming into vogue, we find the lumber industry attempting to muzzle a writer in the *Pittsburgh Press* who quite casually mentioned a few of the advantages of the all-steel dwelling over the wooden structure.

General Outlook in Steel Market Is More Favorable—Orders Show No Increase

Pig Iron Prices More Settled—Demand for Nonferrous Metals Is Light

NOVEMBER opens with the finished steel markets still better in the promise than the performance. Considerable tonnage is opening up in pipe, over 200,000 tons in gas lines alone being projected or imminent, the railroads continue to buy satisfactorily for 1928 track programs, and by the grace of good weather structural steel demand is seasonally high. But orders for immediate shipment warrant no more than a 65 to 67 per cent general operating rate.

A stiffer attitude looms in prices. Producers are fresh from last week's American Iron and Steel Institute meeting, where destructive price competition was roundly denounced and a constructive cooperation spirit displayed. Third quarter financial statements, revealing some losses and many sharp reductions in earnings, emphasize the proximity of selling prices and costs.

Pig Iron

At Pittsburgh pig iron producers express surprise that consumers can get along with so little iron. Many users operating at 25 to 30 per cent explains the situation. Furnace interests find it practically impossible to uncover inquiries and several have nothing to work on at present, even 50 to 100-ton lots of various grades of foundry and malleable iron dwindling in number.

The Pennsylvania railroad, having an unfilled tonnage with one valley merchant producer on a \$3.15 freight rate to Altoona, Pa., added 100 tons to the order. While the base price, \$17.50, valley, was not set aside, the analysis, practically No. 2X, permitted some leeway and a few cents under \$18, valley, was paid. The remainder of the Pennsylvania's order, about 100 tons, is understood to have been placed with an eastern Pennsylvania furnace.

The average of bessemer pig iron

sales prices in September was \$18, compared with \$18.31 in August. The average sales price of basic iron in September was \$17, against \$17.25 in August.

At Chicago several round tonnages of pig iron for first quarter have been closed, and inquiry for that period has grown slightly. Little iron remains to be placed in this district for the final 60 days of this year.

The price of \$18.50, base, Chicago furnace, for No. 2 foundry and malleable, is holding. Several sales of boat iron have been reported at \$18, base, Chicago, and under.

A reduction of \$1.25 in pig iron prices, from \$17.25 to \$16, base, Birmingham, is expected to stimulate buying. Announcement was made late last week, and those consumers who were holding off got in for only a little tonnage.

Copper

The tendency to shade copper prices disappeared about a week ago and nearly all sellers have been firm at 13.25 cents, Connecticut, the past few days, and mostly at 13.37½ cents for higher, delivered Midwest. Domestic buying has been light but export demand has continued large, so that October is reported to have been one of the best months on record.

Zinc

Prime western zinc has slipped off another 10 points this week with some metal available as low as 5.80 cents, East St. Louis. Some business was done at 6.00 cents but not a great deal at lower prices. The ore market continues weak, slipping to \$37 a ton.

Midmonth statistics did not look encouraging from a selling point of view, though not showing any great change. The market is the lowest

since the middle of 1924. High grade metal was cut ¼ cent to 7.75 cents delivered for one brand, while another, of which little is offered in the current market, holds unchanged.

Tin

The tin market has sagged gradually about one cent in the past week. Business was active some days but as a whole users did not buy much. Prices again are down to the level of the end of September, the lowest since the autumn of 1925.

Such buying as users have done has been well scattered over the next few months. A short while ago it was thought that October statistics would turn out very strong, but in the past few days the trade has been changing its ideas.

Lead

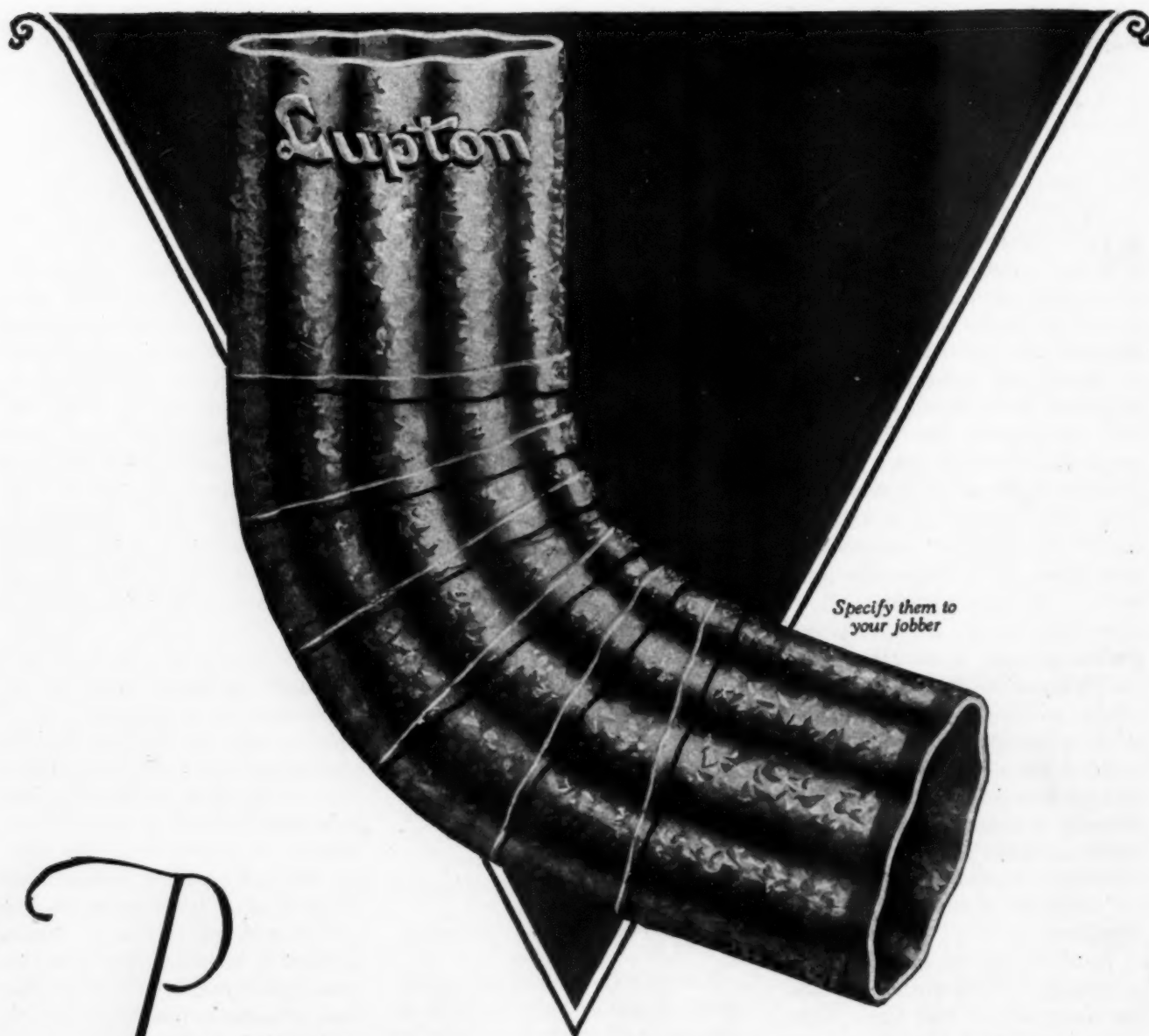
The lead market is slightly firmer with London influence on the side of strength this past week. Buying picked up in the past day or two but was light earlier in the week. There was a tendency toward a slight premium on immediate shipment metal at St. Louis.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$36.00; Commercial 45-55, \$33.00; plumbers', \$30.00; all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.00 to \$16.50; old iron axles, \$19.50 to \$20.00; steel springs, \$13.50 to \$14.00; No. 1 wrought iron, \$10.25 to \$10.75; No. 1 cast, \$12.25 to \$12.75, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; cast aluminum, 13¾ cents.



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TAKE ONE of these new Lupton Hangers in your hands and see how strong it is! See how easy it is to put up—how well designed!

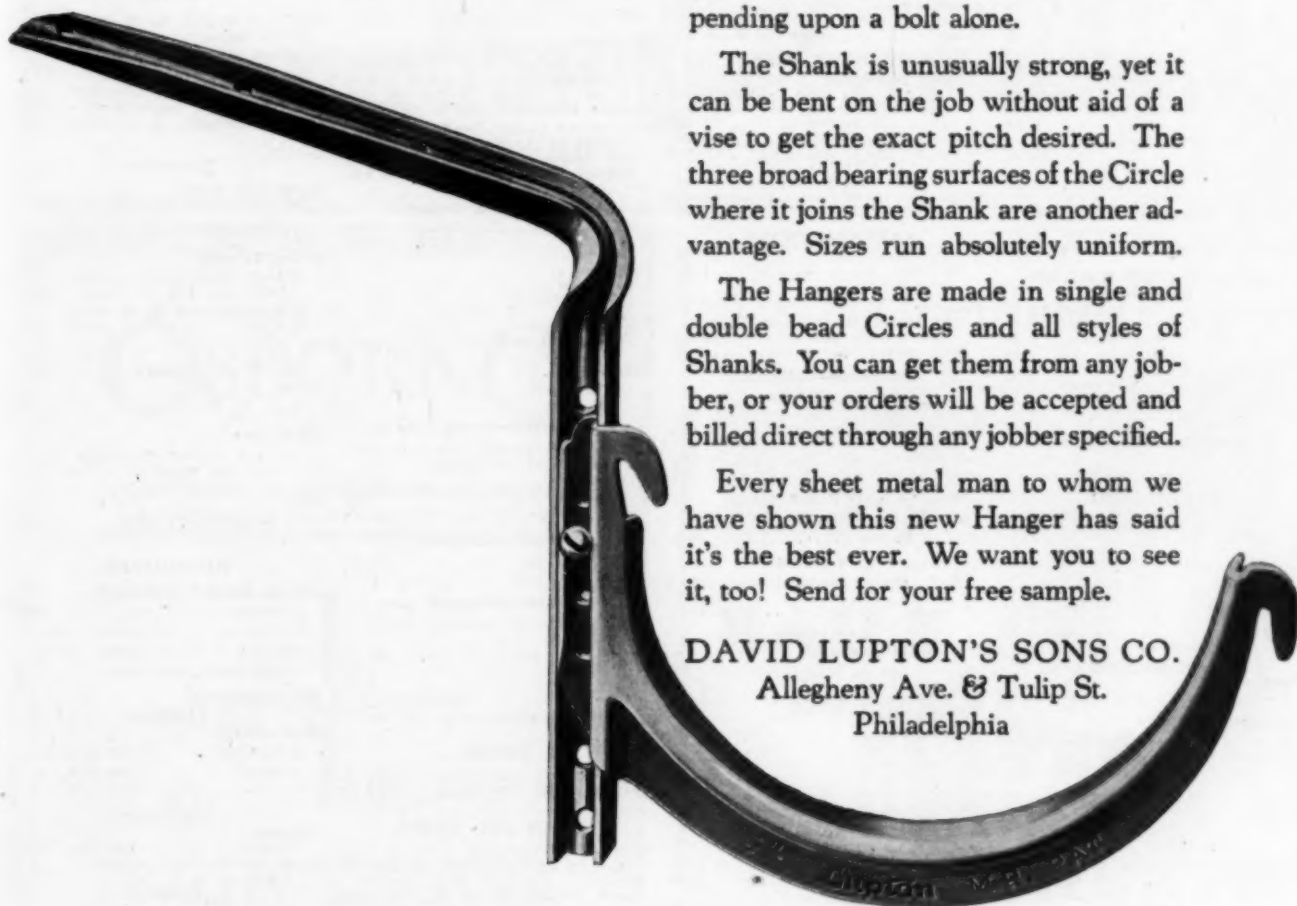
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Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly.

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PIG IRON

Chicago Fdy., No. 2	\$18 50
Southern Fdy., No. 2	22 01
Lake Superior Charcoal	27 04
Malleable	18 50

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets	\$25 10
IX 20x28	29 60
IXX 20x28 56 sheets	16 20
IXXX 20x28	17 55
IXXXX 20x28	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 00
IX 20x28, 40-lb. 112 sheets	28 50
IC 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IV 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including 1/4 in.—100 lbs.	\$4 55
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COKE PLATES

Cokes, 80 lbs., base, 20x28	\$13 60
Cokes, 90 lbs., base, 20x28	13 80
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC 20x28	14 30
Cokes, 135 lbs., base, IX 20x28	16 40
Cokes, 155 lbs., base, 56 sheets	9 20
Cokes, 175 lbs., base, 56 sheets	10 05
Cokes, 195 lbs., base, 56 sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga.per 100 lbs.	\$3 50
"Armco" 10 ga.per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 18-20per 100 lbs.	\$3 75
No. 22per 100 lbs.	3 90
No. 24per 100 lbs.	3 95
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No. 27per 100 lbs.	4 10
No. 28per 100 lbs.	4 20
No. 29per 100 lbs.	4 35
No. 30per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24per 100 lbs.	\$6 15
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GALVANIZED

No. 16per 100 lbs.	\$4 30
No. 18per 100 lbs.	4 45
No. 20per 100 lbs.	4 60
No. 22per 100 lbs.	4 65
No. 24per 100 lbs.	4 80
No. 26per 100 lbs.	5 05
No. 27per 100 lbs.	5 15
No. 28per 100 lbs.	5 30
No. 30per 100 lbs.	5 70

BAR SOLDER

Warranted 50-50per 100 lbs.	\$36 00
Commercial 45-55per 100 lbs.	33 00
Plumbersper 100 lbs.	30 00

ZINC

In Slabs	\$ 8 50
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SHEET ZINC

Cash Lots (600 lbs.)	\$12 00
Sheet Lots	13 00

BRASS

Sheets, Chicago base	17 1/2 c
Mill base	18 c
Tubing, brazed base	26 1/2 c
Wire, base	18 1/2 c
Rods, base	15 1/2 c

COPPER

Sheets, Chicago base	22 c
Mill base	21 c
Tubing, seamless base	25 c
Wire, No. 8, B & S Ga.	18 1/2 c
Wire, No. 10, B & S Ga.	18 1/2 c
Wire, No. 11, B & S Ga.	19 c
Wire, No. 8, B & S Ga. and heavier	17 1/2 c

LEAD

American Pig	\$7 00
Bar	8 00

TIN

Pig Tinper 100 lbs.	\$65 00
Bar Tinper 100 lbs.	66 00

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ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	6 1/4 c per lb.
Mill board 3/32 to 1/2	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Hot Air Pipe Cleaning Bristle, with handle, each	\$0 85
Flue Cleaning Steel only, each	1 25

BURRS

Copper Burrs only	40-5%
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CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora	per 100 lbs. 7 51

CHIMNEY TOPS

Adams' Revolving	Wt. Doz. Price Doz.
4 in.	21 lbs. \$11 00
6 in.	24 lbs. 11 50
7 in.	30 lbs. 13 50
8 in.	33 lbs. 15 00
9 in.	51 lbs. 16 50
10 in.	56 lbs. 18 00
12 in.	66 lbs. 22 00
14 in.	110 lbs. 36 00

CLINKER TONGS

Front Rank, each	\$0 75
Per doz.	8 40

CLIPS

Damper Adams No.-Rivet Steel, with tail pieces, per gross	\$9 00
Tail pieces, per gross	2 50

COPPERS—Soldering

Pointed Roofing	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B	Net
------------------------------------	-----

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.	\$1 75
8 inch, each 25c, doz.	2 40
9 inch, each 30c, doz.	2 75
10 inch, each 32c, doz.	3 00

Smoke Pipe	
7 inch, each	\$0 35
8 inch, each	40
9 inch, each	50
10 inch, each	60
12 inch, each	90

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00

10% Disc. on Adams No. 1 and No. 2 Check

Diamond Smoke Pipe	
7 inch, doz.	\$ 2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	\$ 1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

DIGGERS

Post Hole Iwan's Split Handle (Bureka)	
4-ft. Handleper doz.	\$14 00
7-ft. Handleper doz.	36 00
Iwan's Hercules pattern, per doz.	14 90

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5% Zinc, "Barnes"	60%
--	-----

ELBOWS

Conductor Pipe Galv. plain or corrugated, round flat Crimp.	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2"	45%
--------------------	-----

Copper

16 oz., all designs	45%
---------------------	-----

Zinc

All styles	60%
------------	-----

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge.	Doz. \$1 25
5-inch	1 25
6-inch	1 35
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue.	
5-inch	\$1 75
6-inch	1 85
7-inch	2 15

WOOD FACES—50% off list.

FENCE

726-6-12 1/4% (100 rods)	\$28 68
1948-6-14 1/4% (100 rods)	43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Clayton & Lambert's East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Arkansas, San Angelo and Laredo, Texas	52%
West of above boundary	48%

Geo. W. Diener Mfg. Co.

No. 02 Gasoline Torch, 1 qt.	\$ 5 55
No. 0250, Kerosene, or Gasoline Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.	12 60
No. 15 Tinner's Furn. Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace	3 60
No. 110 Automatic Gas Soldering Furnace	10 50

Double Blast Mfg. Co.

Gasoline, Nos. 25 and 35	60%
--------------------------	-----

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis	30%
(Extra Disc. for large quantities.)	

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$2 12
Tubs (Galv. after made), No. 1	6 00
No. 2	6 35

GLASS

Single Strength, A, 25-in. brackets	87%
Single Strength, A, 34 to 40-in. bracket	86%
Single Strength, A, all other brackets	89%
Double Strength, A, all sizes	86%

HANGERS

Conductor Pipe Milcor Perfection Wire	25%
Milcor Triplex Wire	10%
Eaves Trough Milcor Steel (galv. after forming) List	plus 12 1/2%
Milcor Selflock E. T. Wire, List	plus 50%

HOOKS

Box V. & B. No. 1, each	\$0 26
-------------------------	--------

Conductor

"Direct Drive" Wrought Iron for wood or brick	15%
---	-----

Hay

V. & B. No. 1, each	\$0 26
---------------------	--------

HUMIDIFIER

"Front-Rank," Automatic In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners Hickory	per doz. \$2 25
-----------------	-----------------

MITRES

Galvanized steel mitres, 28 Ga.	70
26 Ga.	60-20

NAILS

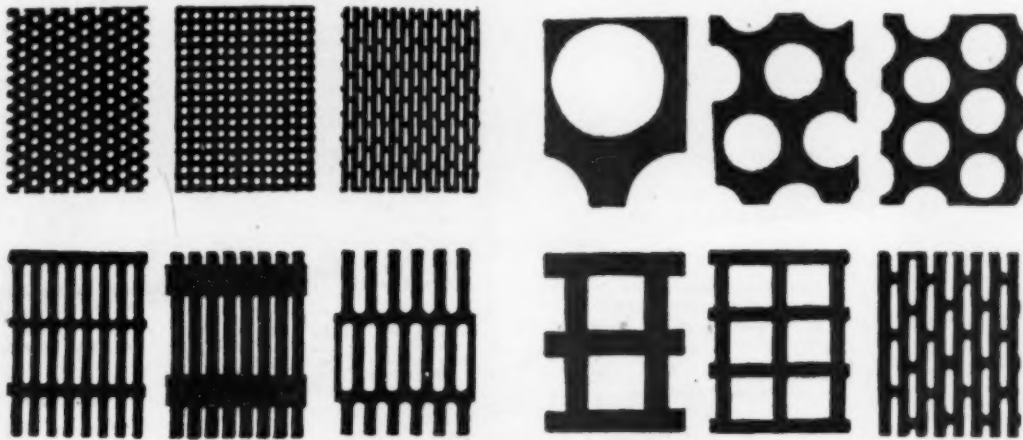
Cut Steel	\$4 35
Cut Iron	4 35

Wire

Common	2 95
Cement Coated	2 95

(Continued on Page 36)

PERFORATED METALS



All Sizes and Shapes of Holes in all Kinds and Thicknesses of Metal.

Punched Metal Grilles, Register Faces, Ventilators, etc.

Guard Material for Machines and Belts. We supply a complete line of Accessories

Screens for Grain, Minerals or anything to be screened.

Perforated Tin and Brass always in stock

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE STREET, CHICAGO, ILLINOIS, U. S. A.

New York Office: 114 Liberty Street

THE J. M. & L. A.
OSBORN CO.
CLEVELAND

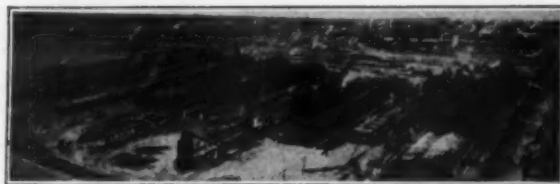
"Everything Used in Sheet Metal Work"



QUALITY & SERVICE

WATCH THIS SMALL PICTORIAL SPACE,
FOR IT CHANGES EACH ISSUE TO
REMINDE YOU OF INTERESTING ITEMS
IN OUR WAREHOUSE STOCK.

Serving the Middle West—



Indiana Harbor Works

**RAILS
BARS
PLATES
SHAPES
SHEETS**

INLAND STEEL COMPANY
FIRST NATIONAL BANK BUILDING
CHICAGO

Branch Offices and Representatives:

St. Louis Milwaukee St. Paul Kansas City
New Orleans El Paso Salt Lake City

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NETTING, POULTRY

Galvanized before weaving	57½-5%
Galvanized after weaving	52½-9%

PASTE

Asbestos Dry Paste:	
200-lb. barrel	\$16 00
100-lb. barrel	8 75
35-lb. pail	3 50
10-lb. bag	1 10
5-lb. bag	60
2½-lb. cartons	35

PIPE

Conductor
Cor. Rd., Plain Rd., or Sq.

Galvanized

Crated and nested (all gauges)	75-2½%
Crated and not nested (all gauges)	70-15%

Furnace Pipe

Double Wall Pipe and Fittings	40-10%
Single Wall Pipe, Round	—
Galvanized Pipe	40-10%
Galvanized and Tin Fittings	40-10%

Lead

Per 100 lbs.	\$12 50
--------------	---------

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove	
28 gauge, 5 inch U. C. nested	11 50
28 gauge, 6 inch U. C. nested	12 25
28 gauge, 7 inch U. C. nested	14 25
30 gauge, 5 inch U. C. nested	10 50
30 gauge, 6 inch U. C. nested	11 25
30 gauge, 7 inch U. C. nested	13 25

T-Joint Made up

6-inch, 28 ga....per doz.	\$ 5 00
---------------------------	---------

All Zinc

No. 11, all styles.....	60%
-------------------------	-----

POKERS, STOVE

W'r't Steel, str't or bent, Nickel Plated, coil handles,	per doz. \$0 75
.....	per doz. 1 10

POKERS, FURNACE

Each	\$0 50
------	--------

PULLEYS

Furnace Tackle....per doz.	\$0 60
.....per gro.	6 00
Furnace Screw (enameled)	per doz. 75

Ventilating Register

Per gross	9 00
Small, per pair.....	30
Large, per pair.....	50

PUTTY

Commercial Putty, 100-lb. Kits	\$3 40
--------------------------------------	--------

QUADRANTS

Malleable Iron Damper.....	10%
----------------------------	-----

REDUCERS—Oval Stove Pipe

Per Doz.	
7-6, 1 doz. in carton.....	\$2 25

REGISTERS AND BORDERS

Baseboard, Floor and Wall.	
Cast Iron	20%
Steel and Semi-Steel.....	40%
Baseboard	40%
Wall	40%
Adjustable Ceiling Ventilators	40%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14.....	40%
Large Register Faces—Cast, 14x14 to 38x42.....	60%
Large Register Faces—Steel, 14x14 to 38x42.....	60%

RIDGE ROLL

Galv. Plain Ridge Roll, b'dd	75-10-5%
Galv. Plain Ridge Roll, crated	75-10%
Globe Finials for Ridge Roll	50%

ROOFING

Best grade, slate surf. prepared	\$ 2 30
Best talc surfaced	2 45
Medium talc surfaced.....	2 00
Light talc surfaced.....	1 30
Red Rosin Sheetting, per ton	\$7 00

SCREWS

Sheet Metal	
7, ½x½, per gross.....	\$0 52
No. 10, ¾x3/16, per gross.	68
No. 14, ¾x½, per gross..	89

SHEARS, TINNERS' & MACHINISTS'

Viking	\$22 00
--------------	---------

Lennox Throatless

No. 13	35%
Shear blades	10%
(f. o. b. Marshalltown, Iowa)	

SHIELDS, REGISTER

No. 1 "Gem" floor.....	\$12 00 doz.
No. 2 "Gem" wall.....	6 00 doz.

SHOES

Galv. 28 Gauge, Plain or corrugated round flat crimp.....	60%
26 gauge round flat crimp.....	45%
24 gauge round flat crimp.....	11%

SNIPS, TINNERS'

Clover Leaf	40 & 10%
National	40 & 10%
Star	50%
Milcor	Net

SQUARES

Steel and Iron	Net
(Add for bluing, \$3 per doz. net.)	
Mitre	Net
Try	Net
Try and Bevel.....	Net
Try and Mitre	Net
Fox's	per doz. \$6 00
Winterbottom's	10%

STOPPERS, FLUE

Common	per doz. \$1 10
Gem. No. 1.....	per doz. 1 10
Gem. flat, No. 3.....	per doz. 1 00

VENTILATORS

Standard	30 to 40%
----------------	-----------

WIRE

Plain annealed wire, No. 8 per 100 lbs.	\$3 05
Galvanized barb wire, per 100 lbs.	3 90
Wire Cloth—black painted, 12-mesh, per 100 sq. ft....	1 65
Cattle Wire—galvanis'd catch weight spool, per 100 lbs..	3 65
Galvanized Hog Wire, 80 rod spool, per spool.....	3 18
Galvanized Plain Wire, No. 9, per 100 lbs.	3 40
Stove Pipe, per stone.....	1 10

WRINGERS

No. 790, Guarantee	each \$5 14
No. 770, Bicycle	each 4 70
No. 670, Domestic	each 4 35
No. 110, Brighton	each 3 70
No. 750, Guarantee	each 5 10
No. 740, Bicycle	each 4 70
No. 22, Pioneer	each 3 40
No. 2, Superb	each 2 65

THE REASON why The Meyer Furnace Company has been a consistent advertiser in AMERICAN ARTISAN for 29 years



October Twenty-ninth
1 9 2 7

American Artisan,
620 Michigan Ave.,
Chicago, Ill.

Mr. J. F. Johnson:

We should perhaps have let you know long ago that we had a splendid response to our October 8th ad in American Artisan, featuring the Engineering Supplement to our WEIR "Book of Facts". We are prompted to write you at this time, by the fact that coupons clipped from that ad are still continuing to come in. As a matter of fact, we haven't experienced such a large number of replies directly traceable to a certain ad since we first began to feature the "Book of Facts" several years ago.

We are of the opinion that another announcement or two along the same lines would be in order.

Yours very truly,

THE MEYER FURNACE COMPANY

6
FEM:H

No. 10
of a
Series
of
Letters

AMERICAN ARTISAN—620 South Michigan Avenue
CHICAGO, ILLINOIS

YOU may send us full information concerning your publication and plans for a result-producing advertising campaign.

Name.....

Address.....

BUYERS' DIRECTORY

Acetylene (Gas) Dissolved.
Prest-O-Lite Co., Inc.,
New York, N. Y.

Air Filters.
Reed Air Filter Co.,
Louisville, Kentucky

Bale Ties.
American Steel & Wire Co.,
Chicago, Ill.

Blowers.
Sturtevant Co., B. F., Boston, Mass.

Bolts—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio

Lamson & Sessions Co.,
Cleveland, Ohio

Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.

Brakes—Bending.
Dreis & Krump Mfg. Co.,
Chicago, Ill.

Brakes—Cornice.
Dreis & Krump Mfg. Co.,
Chicago, Ill.

Brass and Copper.
Copper & Brass Research As-
sociation, New York

Merchant & Evans Co.,
Philadelphia, Pa.

Cans—Garbage.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.
Burton Co., The W. J.,
Detroit, Mich.

Friedley-Voshardt Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Wheeling Corrugating Co.,
Wheeling, W. Va.

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio

Chimney Tops.
Standard Ventilator Co.,
Lewisburg, Pa.

Check Drafts.
Teela Sheet Metal Co.,
Oshkosh, Wis.

Clinker Tongs.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Clips—Roofing.
Wm. Pfeiffer, New York, N. Y.

Coal Chutes.
Majestic Co., The,
Huntington, Ind.

Copper.
Copper & Brass Research As-
sociation, New York

Cornices.
Friedley-Voshardt Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Out-lets—Rain Water.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Dampers—Quadrants—Accessories.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Parker-Kalon Corp.,
New York, N. Y.

Diffuser—Air Duct.
Aeolus-Dickinson Co.,
Chicago, Ill.

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Doors—Metal.
Lupton's Sons Co., David,
Philadelphia, Pa.

Drive Screws—Hardened Metallite.
Parker-Kalon Corp.,
354 West 13th St., New York

Eaves Trough.
Barnes Zinc Products Co.,
Chicago, Ill.

Berger Bros. Co., Philadelphia, Pa.

Elbows and Shoes—Conductor.
Barnes Zinc Products Co.,
Chicago, Ill.

Dieckmann Co., Ferdinand,
Cincinnati, Ohio

Double-Duty Mfg. Co., Aurora, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Engineering—Fan Blast
Warm Air Heating
Herbert H. Davis Co., Inc.,
Chicago, Ill.

Wood Faces—Cold Air
Auer Register Co., Cleveland, Ohio

Eaglesfield Ventilator Co.,
Indianapolis, Ind.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Fences.
American Steel & Wire Co.,
Chicago, Ill.

Fittings—Conductor.
Barnes Zinc Products Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Flue Thimbles.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Furnace Cement—Asbestos.
Armstrong Co., The, Detroit, Mich.

Buckeye Products Co., The,
Cincinnati, Ohio

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Pecora Paint Co., Philadelphia, Pa.

Furnace Cement—Liquid.
Technical Products Co.,
Pittsburgh, Pa.

Furnace Cleaners—Suction.
Brillion Furnace Co., Brillion, Wis.

Sturtevant Co., B. F., Boston, Mass.

Furnace Fans.
A. H. Robinson Company,
Massillon, Ohio

Robinson Furnace Co., Chicago

Sturtevant Co., B. F., Boston, Mass.

Warm Air Furnace Fan Co., The,
Cleveland, Ohio

Furnace Rings.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Walworth Run Fdy. Co.,
Cleveland, Ohio

Furnaces—Gas.
Calkins & Pearce, Columbus, Ohio

Furnaces—Warm Air.
Agricola Furnace Co.,
Gadsden, Ala.

American Furnace Co., St. Louis, Mo.

American Foundry & Furnace
Co., Bloomington, Ill.

Brillion Iron Works, Brillion, Wis.

Calkins & Pearce, Columbus, Ohio

Colburn Heater Co., Chicago, Ill.

Floral City Heater Co., Monroe, Mich.

Forest City Fdy. & Mfg. Co., Cleveland, Ohio

Standard Furnace & Supply Co.,
Omaha, Neb.

St. Louis Heating Co., St. Louis, Mo.

Success Heater Mfg. Co., Des Moines, Iowa

Thomas & Armstrong Co., London, Ohio

Thatcher Co., Chicago, Ill.

XXth Century Heating & Ventila-
ting Co., Akron, Ohio

Utica Heater Co., Utica, N. Y.

Waterman-Waterbury Co., Minneapolis, Minn.

Western Steel Products Co., Duluth, Minn.

Wise Furnace Co., Akron, Ohio

Garages—Metal.
The Thomas & Armstrong Co.,
London, Ohio

Trachte Brothers Co., Inc.,
Madison, Wis.

Gas (Acetylene) Dissolved.
Prest-O-Lite Co., Inc.,
New York, N. Y.

Gas (Nitrogen).
Linde Air Products Co.,
New York, N. Y.

Gas (Oxygen).
Linde Air Products Co.,
New York, N. Y.

Glass—Wire.
Lupton's Sons Co., David,
Philadelphia, Pa.

Grilles.
Auer Register Co., Cleveland, Ohio

Harrington & King Perforating
Co., Chicago, Ill.

Hart & Cooley Co., New Britain, Conn.

Tuttle & Bailey Mfg. Co., Chicago, Ill.

United States Register Co., Battle Creek, Mich.

Grilles—Store Front.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Guards—Machine and Belt.
Harrington & King Perforating
Co., Chicago, Ill.

Handles—Boller.
Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron.
Hyro Mfg. Co., New York, N. Y.

Hangers—Eaves Trough.
Berger Co., L. D., Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

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Majestic Co., The, Huntington, Ind.

Mueller Furnace Co., L. J., Milwaukee, Wis.

Waterman-Waterbury Co., Minneapolis, Minn.

Heaters—Gas.
Calkins & Pearce, Columbus, Ohio

Heaters—School Room.
Floral City Heater Co., Monroe, Mich.

International Heater Co., Utica, N. Y.

Keith Furnace Co., Des Moines, Ia.

Kruse Co., Indianapolis, Ind.

Lamneck Co., W. E., Columbus, Ohio

Machines—Tinsmiths.
Bertsch & Co., Cambridge City, Ind.

Burton Co., The W. J., Detroit, Mich.

Chicago Elbow Machine Co., Oak Park, Ill.

Dreis & Krump Mfg. Co., Chicago, Ill.

Marshalltown Mfg. Co., Marshalltown, Iowa

Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Peck, Stow & Wilcox Co., Southington, Conn.

Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.

Whitney Mfg. Co., W. A.,
Rockford, Ill.

Whitney Metal Tool Co., Rockford, Ill.

Mandrels.
Hyro Mfg. Co., New York, N. Y.

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Harrington & King Perforating
Co., Chicago, Ill.

Miters.
Friedley-Voshardt Co.,
Chicago, Ill.

Miters—Eaves Trough.
Barnes Zinc Products Co.,
Chicago, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Nails—Hardened Masonry.
Parker-Kalon Corp.,
New York, N. Y.

Nails—Wire.
American Steel & Wire Co.,
Chicago, Ill.

Nitrogen (Gas).
Linde Air Products Co.,
New York, N. Y.

Ornaments—Sheet Metal.
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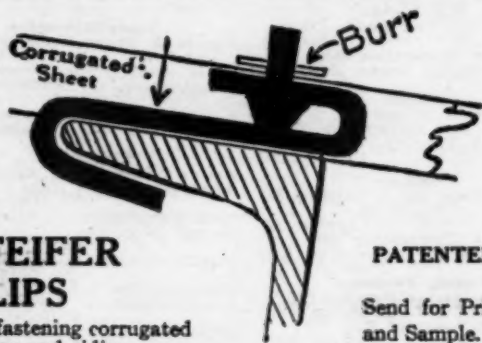
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WANTS AND SALES

Any yearly subscriber to **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

When sending advertisement state whether your name or blind number is to be used.

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For Sale—One-half interest in a tin and plumbing shop. \$500.00 needed. Only shop in town of 1500. Must be a tinner. Reason for selling, old age. Address **R. Dykstra, Evart, Mich.** F-458

Wanted to Buy—Sheet metal shop in suburbs or within 50 miles of Chicago. State what tools you have and price. Address **R-458, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

SITUATION WANTED

Position Wanted—Clerk or manager of hardware store; 10 years as successful manager in same store; have had experience in tin and plumbing work; I am now employed as traveling salesman; only permanent position considered; age 44 years; good reference; married and reliable hardware man. Address **W-458, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

Would like to get in touch with a manufacturer of furnaces and stoves to handle their line in Gary, Ind., as a factory representative in Lake County. Large acquaintance and experienced. Want to sell from factory to customer. This must be a good furnace and a good name. Address **B-458, AMERICAN ARTISAN, 620 S. Michigan, Chicago, Ill.**

Situation Wanted—A high grade experienced furnace salesman will consider a change for the coming year. Capable of planning and estimating heating systems according to the "Standard Code"—also fan work. Address **C-458, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

First class tinner and furnace man, also pumps and wind mills, desires change first of year; 15 years' experience; married; prefer northern Illinois; only steady employment considered; available within a month; can give references. Address **S-458, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

SITUATION WANTED

Situation Wanted—By plumber and fitter. I have also installed hot air heating plants in the past several years; know my trade and am fully capable of taking charge of shop or men; middle aged and married, steady, with no bad habits; my experience has been large and varied and am no floater; come after November 10th; Central West States preferred. Address **W. C. Fisher, Saco, Montana.** Y-458

Situation Wanted: A high grade sales manager for a leading furnace manufacturer will consider making a change. Fully experienced in all branches of **Warm Air Heating** and handling of salesmen. Write me in confidence. **D-458, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.**

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Competent, all around, sober plumber and tinner wants position. Can handle any job in above lines and can take complete charge. Address **D-459, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.**

Position Wanted—Furnace salesman or director of sales. Can furnish a proven sales record and ability to get orders. Address **T-458, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago.**

HELP WANTED

Wanted—Three good furnace salesmen to represent us in Iowa. Must be capable of planning and estimating Heating Systems according to the **Standard Code** and working territory close and hard. Young men acquainted with Iowa trade preferred. Address **Keith Furnace Company, Des Moines, Iowa.** Q458

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Wanted—A first-class gutter, roofing and furnace man; open shop; reasonably steady work if you can come at once. Apply to **Stutz Brothers, 1701 McCallie Ave., Chattanooga, Tenn.** Z457

Wanted—First-class sheet metal worker and furnace man. Address **Andrew Lind, Dundee, Ill.** Y457

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For Sale or Trade—1 set 36-inch forming rolls, 1 30-inch Wright's folder, 1 30-inch mandrel stake. I want wiring machine, burring machine and hatchet stake. Address **Mepharm Sheet Metal Works, 1601 Ventura Ave., Ventura, Calif.** X457

For Sale—The following tools are all in good condition and prices are as follows: 1 30" square shear, \$40.00; 1 20" roll, \$9.50; 1 30" stove pipe folder, \$15.00; 1 circle shear, rebuilt, \$4.00; 1 30" roll, \$10.50; 1 30" bar folder, \$32.50; 1 No. 2 36" groover with end lock, \$37.50; 1 setting down machine, \$14.00; 1 thick edge turner, \$13.50; 1 wiring machine, \$11.50; 1 thin edge turner, \$9.50; 1 pipe crimper, \$9.00; 1 pipe swedger, \$10.00. All the above with stands, 1 beak horn stake, \$10.50; 1 square head, \$3.25; 1 hatchet stake, \$3.50; 1 candle molder, \$1.00; 1 slate ripper, hammer and stake, \$3.00. Will sell the above separately as marked or the whole lot for \$200.00. We also have 1 set 50"x3 1/4" rolls geared, with crank on both ends or for belt power on iron stand, good as new and will sell very reasonable. Address **E-458, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.**

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The addition to our extensive line of heating equipment, of gas-fired furnaces and boilers, creates an opening in our sales force for one or two good salesmen, with traveling experience, and preferably some knowledge of the heating business. We invite salesmen seeking a more complete line to sell, to write us in strict confidence, with a view to arranging a personal interview. Address

L. J. MUELLER FURNACE CO.
MILWAUKEE, WISCONSIN

M458

SALES MANAGER WANTED

Excellent opportunity open December 1st for an experienced furnace salesman as Sales Manager for an established manufacturer. Previous experience as Sales Manager not required but long and exceptional experience as furnace salesman is necessary to qualify for this position. Technical knowledge of furnace construction also required.

The man who can satisfy us may acquire an interest in the business but this is not necessary as what we want is a high type of business producer; a man who can prove to us that he has been a star salesman in the past and is an entirely dependable kind of a business man.

Address Sales Manager, P457, American Artisan, 620 S. Michigan, Chicago.

WANTED

Experienced furnace salesmen in sundry territories by an old established, well known manufacturer of high class trade mark line of furnaces. Address, American Artisan, 620 S. Michigan Ave., Chicago, J458.



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**ITS DRAW
WILL SURPRISE YOU**

GIVES MORE EFFICIENT EXHAUST

Write for Details and Prices

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1191 Builders Bldg. CHICAGO

SPECIAL NOTICES

Salesmen Wanted

A well established Mid-Western manufacturer of warm air furnaces wishes to communicate with commission salesmen who are interested in handling furnaces as a side line in Kansas, Nebraska, Oklahoma and western Iowa. An attractive proposition with liberal commissions will be offered the right men. Commissions paid on all business, including mail orders, coming from salesmen's territories. Prospects furnished thru circularizing and advertising campaign. Address Z458, American Artisan, 620 So. Michigan Ave., Chicago, Ill.

WELL KNOWN TRADE MARK WARM AIR FURNACE

manufacturer requires three high grade heating salesmen to complete 1928 staff. Territories Michigan, Indiana, and Illinois, outside of Cook County. Substantial salary guaranteed, also commission beyond quota. Address A459, American Artisan, 620 So. Michigan Avenue, Chicago, Ill.

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Eight experienced furnace salesmen by manufacturer of a complete line of furnaces and furnace accessories. Our salesmen know of this advertisement. Address B459, American Artisan, 620 So. Michigan Avenue, Chicago, Ill.

FURNACE SALESMAN

wanted by established manufacturer of quality furnaces. The product and also the proposition will bear the closest scrutiny. Chicago territory still open. Man with successful selling record, either wholesale or retail, is wanted.

If you are looking for a real opportunity, a place where hard work and honesty will repay you in direct proportion to your efforts, and a permanent situation, write for complete details to C459, American Artisan, 620 South Michigan Avenue, Chicago.

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Circulating type. I have designed and built a patent office model of a circulating electric heater for home use—that is radically new in principle—and unusual in design and efficiency. Can be retailed at a good profit for less than \$10.00. I need a partner with ideas—to help me develop this heater and place it on the market. A small fortune in it if properly exploited. Address L458, American Artisan, 620 So. Michigan Ave., Chicago.

SPECIAL NOTICES

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Would like to purchase complete set of furnace patterns. Please give specifications as to number of sizes in which furnace is made, together with weights and heating capacities. Address P-458, American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

FURNACE SALESMEN WANTED

for Illinois, Missouri, and Minnesota territories by manufacturer having well established business in these territories but who is expanding and putting on additional men. In replying state age and experience. Address O-458, American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

**"It ain't gonna
SMOKE no more"**

STANDARD 48 lb. CASES

48— 1 lb. ($\frac{1}{2}$ pt.) cans @ 35c lb.
24— 2 lb. (1 pt.) cans @ 30c lb.
12— 4 lb. (1 qt.) cans @ 25c lb.
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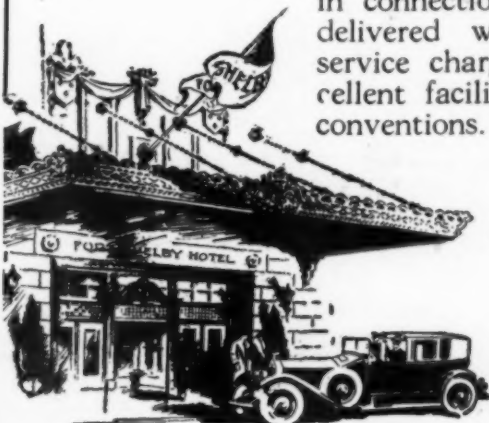
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